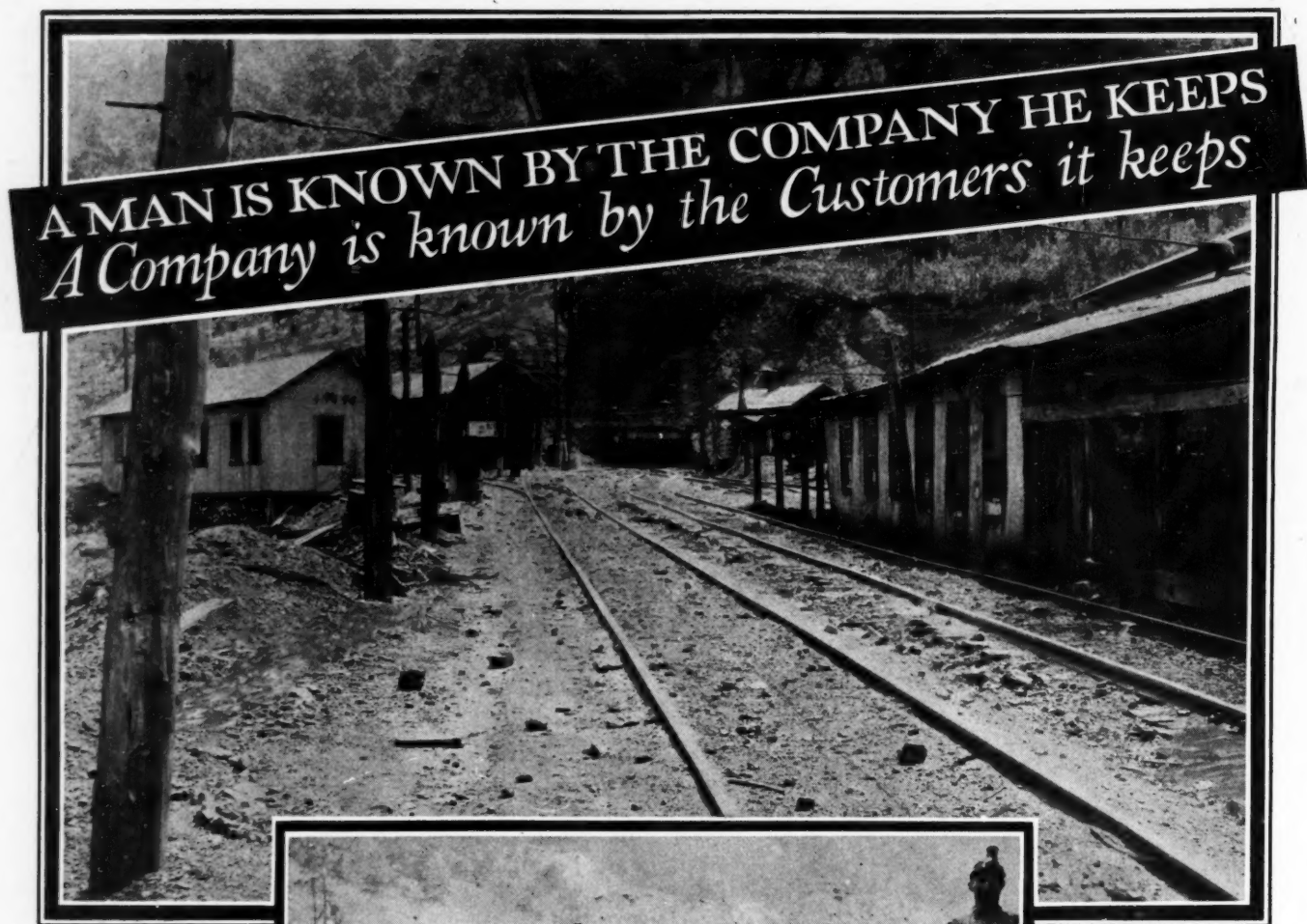


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# COAL AGE

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Coal Mining Institute of America Studies How to Reduce Ash in Coal	835
STAFF CORRESPONDENCE.	
Government Influence in Business Dominates American Mining Congress Sessions	842
BY SYDNEY A. HALE.	
Machine Loading Gains Rapidly in Last Three Years	847
BY RAYMOND KENNY AND F. G. TRYON.	
Coal Industry Discounts Regulatory Features of Presidential Message; Success of Hard Coal Policy Recalled	851
BY PAUL WOOTON.	
Trade Board Post Unfilled; May Be Fight on Myers	851
Dorchy Loses Last Plea; Must Go to Jail	851
Green Says 5-Day Week Is at Hand	852
Indiana Mine Explosion Kills 31 and Burns Many; Fire Blocks Rescue Work	852
D. & H. Brief Urges Assent to B. R. & P. Lease	852
Parker Presents Coal Bill Modified in Accordance with Coolidge Message	853
Wage Cuts Likely Soon in Pittsburgh District	853
Georges Creek Men Still Out	853
October Freight Record Made by Railroads	854
Wages Revised Downward in Freeport Field	854
U. S. Coal Dumping Charge Sifted in Alberta	854
Indiana Union Organizers Canvass Open Shop Miners	854
"Use Canada Coal" Scheme Gets Flying Start	854
Mine Union Holds Election of Officers This Week	854
Editorials	833
Underground Operation	849
News Items from Field and Trade	854
Among the Coal Men	857
Obituary	857
Traffic News	857
Weekly Review and the Market	858
Foreign Market and Export News	863
New Equipment	864
Current Prices of Mining Supplies	866

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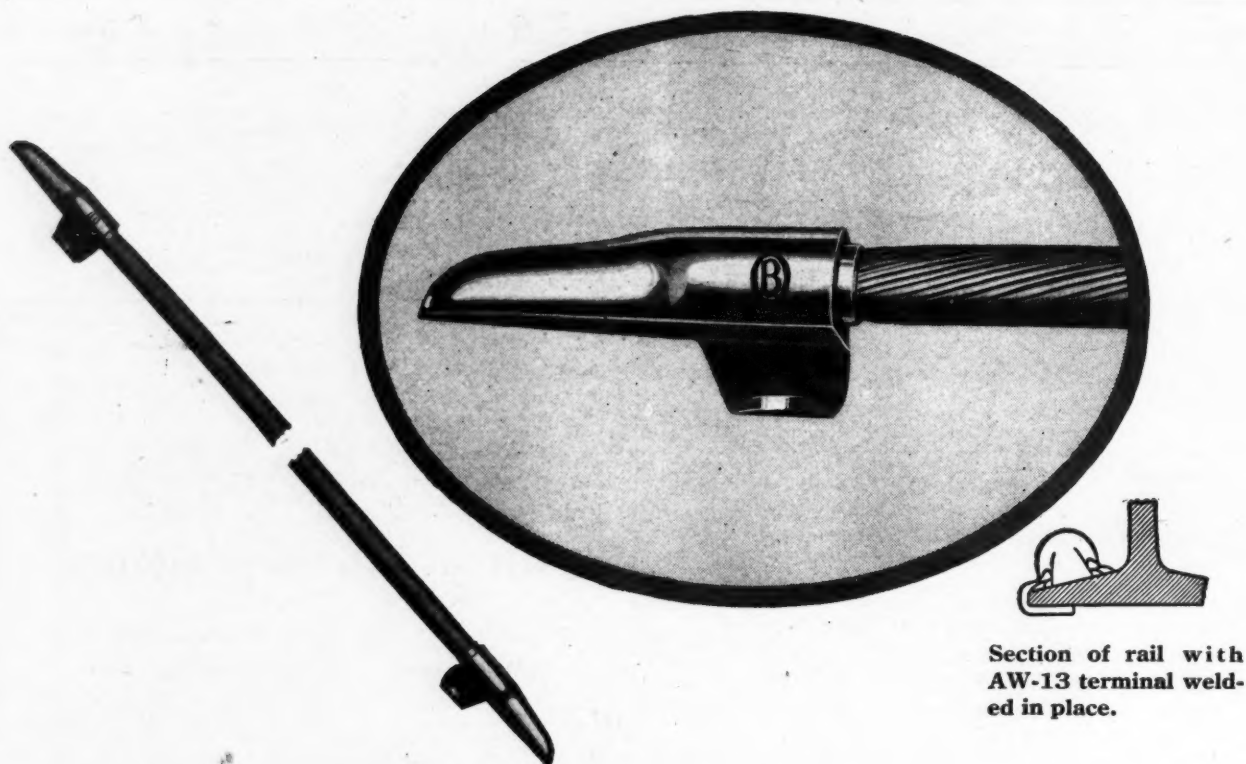
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## Mutual Interdependence

Safety and efficiency in the mines go hand in hand—they are almost as inseparable as Siamese twins. Many a manager has sought safety and with it attained efficiency. Conversely, others have essayed efficiency and secured safety as a byproduct. In the last analysis both are merely good engineering.

In next week's issue of *Coal Age*, R. Dawson Hall will tell about some of the operating methods followed in the Navajo No. 5 mine near Gallup, N. M. Although conditions at this mine naturally vary somewhat from those prevailing in some of the other fields of the country, many of the practices there followed carry important lessons for coal producers everywhere.

Coal mines, as such, can never be standardized: their form and extent will always depend in large measure upon local conditions. No two operations, therefore, can ever be made exactly alike for Nature believes in variety and does not deal in duplicates. The progressive mining man, however, is ever on the alert for a principle or a practice the adoption or adaption of which will render his own particular mine either safer or more efficient. Such ideas and practices may be found a-plenty in this description of Navajo No. 5.



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# COAL AGE

MCGRAW-HILL

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Devoted to the Operating, Technical and Business  
Problems of the Coal-Mining Industry

R. DAWSON HALL  
*Engineering Editor*

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## Continuing Its Modernization Programs

**D**URING THE LAST anthracite strike there were many obvious indications of a fuller and greater appreciation of the need and benefits of modern types of coal-cleaning plants. Even while the strike was on there were at least five new coal breakers under construction and many more being partly remodeled.

To some, this activity seemed destined to a short life. They felt that the pressure of the strike or the fear of an increased wage scale was driving a few of the operating companies to effect new savings. However, whether born of necessity, or from a taste of the increased operating profits made possible by modern coal-cleaning systems, the anthracite field today is well on its way to a complete reconstruction. In fact, the statement made in *Coal Age*, less than a year ago, to the effect that every anthracite breaker not built in the last five years will be rebuilt in the next ten, is already rapidly coming true.

## Making Peace More Difficult

**C**OAL REGULATION again has received the seal of Washington approval. President Coolidge, in his message to Congress last week, renews his appeals of 1923 and 1925 for an enlargement of executive authority. With the expiration of the wage agreements in the unionized bituminous fields as the stated exciting cause, the President asks that legislation be enacted which will "assist the Executive in dealing with such emergencies through a special temporary board of conciliation and mediation and through administrative agencies for the purpose of distribution of coal and protection of the consumers of coal from profiteering."

If anything, this latest pronouncement of the President is more amorphous than its predecessors. They at least, by specific reference to the report of the U. S. Coal Commission, gave some clue, if no limits, to what was in the Presidential mind. But even that guide is ignored in the most recent appeal to Congress. Doubtless the framework upon which Mr. Coolidge would have the gentlemen on Capitol Hill fill in the enabling laws is still that fashioned by the Hammond commission, but there is nothing in the present message to hold ambitious lawmakers to that plan. Congressional ingenuity is left unrestrained.

The reasoning by which the President arrives at the desirability of legislation seems somewhat obscure. The sole justification advanced for the enactment of further statutory measures is that "no progress appears to have been made within large areas of the bituminous coal industry toward creation of voluntary machinery by which greater assurance can be given to the public of peaceful adjustment of wage difficulties such as has been accomplished in the anthracite industry." Plainly the administration fears a strike in the spring and proposes intervention in advance. The lessons of the anthracite controversy are to be forgotten in a gesture

to placate Congressmen from the non-coal producing states!

The desirability of the creation and maintenance of voluntary machinery within the industry for the peaceful adjustment of wage difficulties is quite generally conceded by all not touched with a socialistic complex. The creation was possible in the anthracite industry because President Coolidge resolutely refused to be influenced by the pressure and appeals for Presidential intervention. Round robins, heated speeches, Senatorial resolutions left him unmoved. By a definite policy of inaction he cast upon the industry the responsibility for solving its own labor problems and the general acceptance and approbation of the peace program agreed upon at Philadelphia last February showed the wisdom of his course.

In the light of what happened last winter, any serious attempt to press the recommendations in the President's message of last week promises to embarrass, if not destroy, a movement to establish in the union bituminous fields the same kind of machinery that has been set up in the anthracite region. Certainly, if the initiative is to be taken over by the government, the incentive for industrial self-determination is weakened. The road to peace is made more difficult.

## Get Rid of the Dangerous Man

**A**SSISTANT FOREMEN, firebosses and others directing mine operation, who are not vested with power to discharge workmen for carelessness—and for that matter, the workers themselves—should be brought to realize that they are in duty bound to report the perpetrator of any unsafe act committed underground. Reporting carelessness, even though the specific act is not overt, is not "squealing." Rather it is charity directed toward the accused and his fellow workers. Those in authority can eliminate much of the risk due to the human element by dismissing those who are careless.

Undoubtedly it would be more accurate to describe as *dangerous*, rather than *careless*, any man who breaks safety rules or state mining laws. Considered as a single agent, such a man is more threatening than black powder or dynamite or than any electrical device, because he is liable to exercise his dangerous proclivities in any one of numerous ways. Mine officials well know the behavior under various circumstances of material agencies possessing dangerous characteristics; they are never sure, however, as to how the dangerous man will act. Many officials who do not allow the use of black powder knowingly overlook the dangerous man provided he is a good producer or if labor is scarce.

In any event, such men should not be tolerated in any mine where dangers other than those attributable to the human element are many. If he lost his jobs often enough, the dangerous man would soon either mend his ways or else quit mining.

### Big Versus Small Cars

**I**N GERMANY the mines are equipped with small cars, and the Germans believe they are advantageous. They are of such width that two or even three tracks can be placed in a single heading and consequently there is minimum interference on the mine roadways. The track-work is simpler where the return track, if one is provided, is in the same heading as the outgoing one. The cars are light and can be handled by men without undue effort. They have no bumpers. As they come close together there is little spillage when they are loaded by conveyors. Difficulty arises, however, when they have to be hoisted. Triple-decked cages are necessary, but this disadvantage could be corrected by dumping the cars at the foot of the shaft and using skips.

With small cars, the work of gathering is made difficult provided conveyors were not installed. In room-and-pillar work with hand loaders "filling" directly into cars, small units are undesirable, and with loading machines delivering the coal into cars they are an intolerable nuisance. With long hauls, however, big trips are necessary, and every large American mine anticipates the time when its coal will have to be hauled a long distance, for there are few mines that have as many levels as those in the Ruhr. Therefore American mining doubtless will progress steadily toward larger and larger cars, assured that its destiny lies in that direction. Transportation problems have to be met, and the large or ever larger car seems the natural solution where the roof will permit. But it is interesting, nevertheless, to speculate on developments based on conditions quite different from those which have to be met in this country.

### Keeping Up With the Times

**M**ANY IMPROVEMENTS in the processing and utilization of bituminous coal and its byproducts that were unknown a year ago were presented at the recent International Conference on Bituminous Coal. An account of this Conference and of the many papers there presented appeared in a recent issue of *Coal Age*.

Any one who attended this Conference, or who reads the papers that were given there, cannot but be impressed with the tremendous advances that have been made, or which are being developed, in the science of utilization of one of our most essential raw materials. As a result of these advances the producer of coal knows his product better, is more keenly aware of its true value, is perhaps inclined to be less wasteful in its mining and use, and will undoubtedly be more alive to the great possibilities offered by its processing. In brief, all those who, in any capacity, have to deal with coal are inclined, as a result of the Conference, to look ahead and to plan and equip their various industries and businesses with these improvements in mind.

Although the advances in coal processing have developed slowly, it seems reasonable to assert that they have finally "arrived." We may also safely predict that the improvements along these lines in the next few years will equal, if not overshadow, any of the many "revolutions" that industrial processes in the United States have undergone in past years.

The many benefits and advantages to be gained through mechanization and electrification of coal mines were demonstrated years ago. Yet when everything is considered, it cannot be truthfully said that these improvements have "taken hold," in the majority of cases,

as rapidly or completely as their merits would seem to warrant. Improvements in mechanical and electrical equipment, both for mining and preparation, have been many in recent years; but the adoption of the modernized equipment, in many instances, has been discouragingly slow. Unless there is a "speeding up" along the above lines, the newly founded science of coal processing will undoubtedly surpass coal mining and preparation.

Let every coal mine owner, operator and manager get down to the facts relating to the desirability, if not the absolute necessity, of mechanization, electrification and modernization in these days of increasingly severe competition, when only those properly equipped can hope to survive. "Modernize least ye perish" is a most timely, even though oft repeated, warning.

### Direct-Action Reports

**R**EPORTS, to be of operating value, must be immediate, accurate and reliable, and the next requisite is immediate action upon the information they contain. When thus used they reduce waste in management.

At the mines of the Davis Coal & Coke Co. the cutting is done at night. Reports are required of the machine runners which show the time consumed in cutting every place; delays must be explained, no matter who is at fault. Each machine runner's completed report is at the mine foreman's office upon his arrival in the morning. When places have not been cut, due to any cause whatever, the mine foreman knows this and can catch the miner before he reaches his working place, only to find that he cannot load coal immediately or possibly not at all. The mine foreman, knowing the conditions, instructs the miner to clean up the fall, if this is the difficulty, or gives him other instructions, according to the necessity of the occasion.

The point is that efficiency in management is made possible by these reports because the mine foreman gets the necessary information promptly and can take immediate steps to safeguard the day's production and the miner's earnings. This affords the company and the men every possible advantage of the day's working time. These reports in themselves are small matters. They are simple and easily made out, but they place before the foreman upon his arrival in the morning the condition of every machine place. They have been the means of large savings to both the miners and the company.

### Three Weeks Too Late!

**T**HE PRESIDENT of a coal company recently exclaimed in the words of our caption when he stepped into his manager's office and found that official discussing with an editor of *Coal Age*, "ways and means of increasing mine car turn-over." The remark was a sort of jest reminiscent of the recent drop in prices, but it nevertheless provided food for thought.

Turning from methods to equipment, how often it happens that an improvement is completed too late to take advantage of a period of good demand! And how often the "lid is clamped" down on the expenditure for an improvement, when such a turn comes!

There is but one way to be certain of readiness for these recurring periods of extra demand. When the opportunity to make a paying improvement is evident, lose no time in making a convincing plea for the requisite money,—when such a plea is necessary—and then lose no time in getting the new equipment into action.



# Coal Mining Institute of America Studies

## How to Reduce Ash in Coal

Four Systems of Cleaning Coal Presented, Also Problems in Sizing and Disintegration—Spontaneous Combustion, Accident Prevention and Methods of Using Machinery in Loading Studied

### Staff Correspondence

Realizing the importance of progress in the preparation of coal to the welfare of the Pittsburgh region, the Coal Mining Institute of America devoted the whole of its first day to a consideration of this problem, which so vitally affects its future. The Rheolaveur, the Hydrotator, the Roberts & Schaefer Dry Cleaning system and the Chance washer were described in turn, and H. B. Cooley outlined recent progress in sizing.

President W. C. Hood, assistant general superintendent, H. C. Frick Coke Co., was chairman. H. D. Mason, the secretary-treasurer, reported that the funds including bonds totaled \$1,757.40, that the gross revenue for the year was \$3,330.52 and the expenses \$3,074.99. There were 92 new members; 25 persons had died during the year, making an increase of 67. There were now 3,280 members on the roll.

### TAKES ITS PRESIDENT FROM MARYLAND

It was announced that J. J. Rutledge, state mining engineer and head of the Bureau of Mines of Maryland, was elected president. T. R. Johns, general superintendent, Bethlehem Steel Corporation's coal mines, was announced as first vice-president; J. W. Paul, U. S. Bureau of Mines, as second vice-president and W. H. Howarth, state mine inspector, Brownsville, Pa., as third vice-president. H. D. Mason was re-elected as secretary-treasurer. The directors elected were Nicholas Evans, A. R. Pollock, W. H. Allport, C. B. Byrne, G. W. Riggs, D. D. Dodge, W. C. Hood, Cadwalader Evans, William Nisbet and James Walker. W. E. Fohl reported on the progress of the formulation of standards on the classification of coal, saying that the U. S. Bureau of Standards had been asked to act as sponsor for the standard, the Coal Mining Institute of America not having the secretarial staff or the funds to meet the demands of sponsorship. The committee was continued to represent the institute. The date of the next annual meeting was set, on motion of Prof. Chedsey, for the first full week in December.

After the president's address, Dean E. A. Holbrook, Pennsylvania State College, introduced the subject of preparation, saying that much of the early washing of coal could be described simply as a passing through water. The washing did not remove ash or sulphur but gave the coal a little better appearance. That and the declaration that the coal had been washed was relied on to move it at a slightly higher price on the market. Thus the washing of coal fell into bad repute. Abroad where coals often contained more ash than those of America, for here only the best are mined, washing was a more serious proposition and accordingly meant more than giving the coal a bath. In the anthracite



J. J. Rutledge, Institute's New President

region and in Alabama, where the coal, despite its impurities, had to be prepared for metallurgical purposes, washing became a process more effective than a mere plunge into water. Dean Holbrook believed that specific machines were needed for specific coals and that careful study was essential in every case where a washer was installed.

### OLD LAUNDER METHODS AND NEW

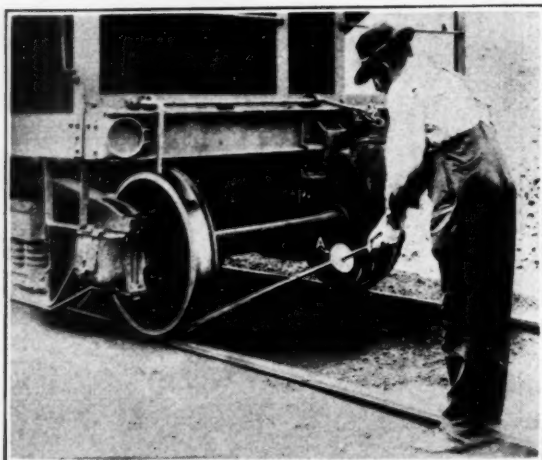
J. R. Campbell described the Rheolaveur system of washing, with sealed-discharge boxes where the coal was of mixed sizes and with free-discharge boxes for the coal of birdseye size. He said that with the Rheolaveur it was possible to obtain 99.5 per cent of all the coal that by float-and-sink tests could be shown to be recoverable. He said that the principle of the Rheolaveur was akin to that of the Elliot and Blackett, the first having a scraper conveyor that moved slowly up a launder, or trough, carrying the entrapped slate up to the top of launder and allowing the clean coal to pass with water over the scraper blades in a cascade and reach the bottom. The second embodied an inclined cylinder with spiral riffles. The coal passed over these riffles and escaped at the lower end of the cylinder. The heavier material remained in the riffles and was discharged at the top. These washers ingenious as they are, are not suited to the treatment of fine coal and do not give, according to Mr. Campbell, as close a separation of the larger material.

Mr. Campbell said that W. L. Affelder had used a riffle washer at the Redstone mine for the washing of coke breeze and C. M. Lingle one at the Graceton washery. The latter, according to Mr. Campbell, worked well but was difficult to control.

As the Rheolaveur was described in *Coal Age* in the issue of Dec. 2, it will be unnecessary to report Mr. Campbell's remarks in detail except in elaboration of what was there contained. Mr. Campbell said that in the second sealed-discharge box in the main launder

no water was used. In the first box it was necessary to supply water to take the place of the void created by the steady removal of slate from the launder by the Rheobox.

The author of the paper also remarked that as the result of the recirculation of the material the density of the washing medium was raised thus increasing the action of the launder. As evidence of the high



Punch Bar With Guard Like That on a Foil

George Groves on the afternoon of the second day delivered a paper for J. J. Forbes on "Safety Kinks." This illustrates one of them. Should the bar slip the man is protected.

capacity of the system he stated that a 14-in. launder had a capacity of 40 to 50 tons hourly, cleaning coal up to 2-in., that a 20-in. launder would wash 65 to 80 tons hourly up to 3½ in. and that a 32-in. launder would clean 135 to 160 tons hourly up to 3½ and 4 in. These launders would have, of course, sealed-discharge boxes. A 10-in. launder with free-discharge boxes would clean 30 to 35 tons per hour of coal ¾-in. diameter and under and a 14-in. launder 55 to 65 tons per hour of 1½-in. diameter and under.

About 0.75 kw. per ton of operation would be all the power needed for Rheoboxes, elevators, circulating pumps and sizing shakers. The power consumed in a complete breaker or washery including head house or tippie for screening and preparing the sizes larger than 3½-in. would be between 1 and 1½ kw.-hr. per ton cleaned. From 4 to 4½ tons of water would be needed per ton of coal washed or between 2 and 2½ gal. per min. per ton cleaned in an 8-hr. operating day. The Rheolaveur process lends itself to water recovery, so the make-up water can be reduced to from 25 to 50 gal. of water per ton of coal washed, which Mr. Campbell said was the quantity of water used in the jig washer of the United States Fuel Co., at Middle Fork, near Benton, Ill., over which he had charge. There, however, the coal was dried by centrifugal driers.

Mr. Campbell compared the slate ends of the Rheolaveur with those obtained by other methods:

Slate Ends, Rheolaveur and Other Process

		Rheolaveur In Refuse		Size	Other Process In Refuse	
		Bone Per Cent	Coal Per Cent		Bone Per Cent	Coal Per Cent
<i>First Series</i>						
Test	1	1	0	Grate	3.56	2.38
	1	0	0	Egg	3.12	2.31
	3	0	0	Stove	2.06	1.37
	4	0	0	Nut	1.12	1.00
<i>Second Series</i>						
Test	1	0.75	1.0	Grate	3.56	2.00
	2	0.0	0.0	Egg	2.81	1.75
	3	1.25	0.50	Stove	2.06	1.31
	4	0.0	0.0	Nut	0.94	0.75

The author then gave some details regarding the Cokedale plant of the American Smelting & Refining Co., which is located a short distance out of Trinidad, Colo. The coal is crushed to ½ in. but 40 to 50 per cent is ¼ in. and under. With the Rheolaveur process it has been possible to reduce the ash 1 per cent below that obtained with the use of tables and of course the capacity is greater per unit. The recovery also is somewhat higher. The Rheolaveur installed has a capacity of 50 tons per hour. The feed coal has from 18 to 20 per cent of ash and the refuse from the washer has about 50 per cent ash. Guy V. Woody made further remarks on the method of operation of the system.

**A**T THE AFTERNOON SESSION D. C. Ashmead described the action of the Hydrotator for small sizes of coal, explaining the countercurrent system by which the ash is removed. The percentage of ash is reduced in three stages. A coal having 30 per cent ash is cleaned in the first stage so that the percentage of ash becomes 18. In the other two stages the percentage is reduced to 15.

The Hydrotator, which was described by L. F. Hardecker in *Coal Age*, Vol. 23, pp. 675-676, occupies but little space. One illustration, which Mr. Ashmead showed, incorporated a building measuring 19x36 ft. and appearing quite insignificant compared with the big breaker of which it is an adjunct. Small and low though it is, it adequately takes care of the fine sizes of the entire output of the larger structure. Mr. Ashmead said that in most cases there was plenty of waste room in a big breaker to permit of the installation of a Hydrotator large enough to treat the fine sizes. All that was needed was to find a vacant floor space 7 to 8 ft. wide and 24 ft. long.

#### COAL RISES TO TOP OF TANK

The coal is fed with water through a distributor into the center of a tank in which is a vertical pipe, to which is affixed a horizontal cross pipe with nozzles set at an angle to the horizontal of 30 deg. The vertical pipe revolves slowly and water is discharged from the nozzles into the tank from a point a few feet from the bottom. It effectually distributes the coal in the tank. The heavy material in the coal falls to the bottom and is removed to the slate pile. The lighter material rises to the top. The clean coal reaches the top of the tank and passes off in a launder. The middlings rise within about a foot of the top of the tank and are removed by a suction pipe. By means of a pump these middlings are returned to the vertical pipe and thence to the nozzles and are thus recirculated so that any light material is given another opportunity to rise to the top of the tank and pass off in the launders. The nozzles afford the necessary agitation so that the light material can escape and be carried to the top of the tank. When Mr. Ashmead had concluded Mr. Remick gave further information regarding the operation of the washer.

H. B. Cooley, consulting engineer with Allen & Garcia, Chicago, read a paper on preparation in which he declared that no one mechanical device was universally adapted to cleaning all coals in all locations and to meet all fuel requirements and that before any type of cleaning process is selected careful study should be given to the character of the impurities and whether the ash



and sulphur are found in the coarse or finer sizes, and a decision should be reached as to what results can be obtained.

Mr. Cooley said that the shearing machine had demonstrated its value as an aid in producing lump coal. In some instances the record shows an increase of from 4 to 8 per cent in the quantity of large coal. Snubbing has become so general in some fields that it is no longer regarded as an experiment but as a recognized means of increasing the percentage of lump.

The operator, said Mr. Cooley, has become convinced that it is best to relieve the loader of his time-honored duty of drilling the coal and loading his shots. The cost of this service is variously taken care of in different fields, but some operators figure that even though their cost of coal on a mine-run basis is increased 10c. a ton or more, the average realization from the increased quantity of coarse coal will more than offset the added expense.

#### MORE PICKING NEEDED WITH MACHINE LOADING

Mechanical loading, declared Mr. Cooley, is reducing the possibility of hand picking in the mine to a minimum. One mine producing 4,500 tons a day had six to eight men on its picking tables when loading by hand. The same mine, now completely mechanized has thirty men on the tables. The refuse has increased from 20 to 80 tons per day and of the latter figure about 40 tons per day is burnable and is crushed and mixed with the finer sizes. It is safe to assume that at this mine the saving resulting from mechanical loading should be debited with a charge of at least 5c. per ton for the cost of handling refuse. Many tipples with ample cleaning facilities have had, since mechanical loading has been introduced, to spend from \$15,000 to \$40,000 on additional equipment, including lengthening of picking space, increased refuse-disposal facilities, providing means for splitting the coal into more sizes, for picking the coal thus separated and remixing the sizes. All this does not include the cost of any mechanical cleaning units whatsoever.

In installations of vibrating screens using wire cloth aggregating in cost \$90,000, said Mr. Cooley, the cost per ton of hourly capacity has ranged from \$12 to \$25 with a weighted average cost per ton of hourly capacity of \$19.50. The variation is largely due to the fact that some of the plants are screening down to  $\frac{1}{8}$  in. and others only to  $1\frac{1}{2}$  in.

A comparison of the cost per square foot of screening area also shows a wide range varying from \$19 to \$50 per square foot with a weighted average of \$32 per square foot. The chief disadvantage of any type of vibrating screen depending on the gravity flow of the material is the difficulty of controlling the flow of coal with varying moisture content. Although the screens are so designed that the inclination can be readily varied, the attendant in charge either will not or cannot regulate the flow for alternate wet and dry material. The effectiveness of the screen carrying wet and dry coal can in a measure be held constant by varying the intensity of vibration, but this again puts the matter in the hands of an attendant who may or may not be interested in obtaining the best results.

The vibrating screen using wire mesh does not size as accurately as a shaker screen. In other words the "close-to-mesh" undersize passing over the vibrating screen is greater than over a shaker screen. On the other hand the percentage of fines, that is dust and

material up to  $\frac{1}{8}$  in. that passes over a vibrating screen is materially less than over a similar shaker screen. To be effective the cloth on a wire screen must be fastened securely and must maintain an even surface without bulging.

The use of belt conveyors for loading booms is increasing. They present several advantages over the

Car Block  
for Trips  
at Shaft Bottom



steel-apron conveyor. The maintenance is undoubtedly less; the discharge pulley can be made small to minimize drop and in some cases the initial cost is less. However, the cost of conveyor belting at present prices is such that no initial saving can be effected in the use of belts for this purpose.

Ray Arms described the washer constructed by Roberts & Schaefer. He said that the dry washer, unlike the wet washer, reduced rather than increased the percentage of water in the coal, thus giving an improved product and preventing the freezing of the coal on its way to the market and in storage. With wet washing where low temperatures prevail it is difficult to prevent freezing in the washer. In the manufacture of metallurgical coke it is found that the time of coking is reduced by the use of dry coal and that the disintegration of the oven walls is greatly reduced.

At some mines water is obtainable only at high cost and much difficulty, but where air is used instead of water there is no lack of the operating medium. With air the sizes should be classified so that the diameter of no piece of coal should be larger than  $2\frac{1}{2}$  times the diameter of the smallest piece to be treated on the same part of the table. Arrangements, however, had been made which provided a classifying as well as a concentrating action in the same device making it possible to prepare on a single table a wider range of sizes. Roberts & Schaefer are at present adhering to the principle of close sizing as the best method of preparing the coal. They prefer to use a horizontal screen or one with not more than a 3 or 5 deg. inclination.

Recent modifications have increased the ruggedness of the equipment, have improved the air control, so that adjustments for feed are reduced to a minimum, and have introduced the principle of a recirculation of the middlings for retreatment. In order to decrease the dust in the plant, the finest of the coal can be removed, before the introduction of the coal to the plant, or it can be sucked up from the tables during the process of concentration. The practice has been to use the latter method.

From 5 to 20 per cent of the coal is collected by the cyclone collector. The impalpable dust could be collected by any one of the standard filters on the market. Asked as to the percentage of dust escaping to the air from

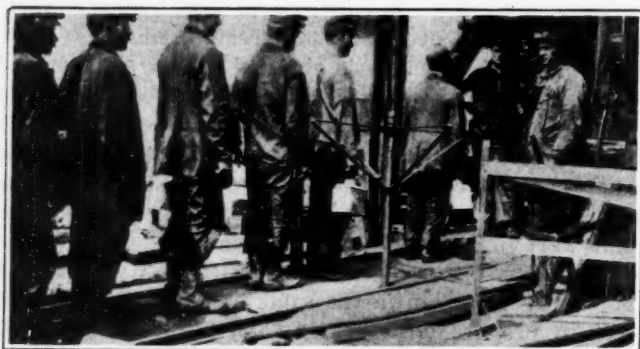
the cyclone, Mr. Arms said that only  $\frac{1}{2}$  to 2 per cent of the dust entering the cyclone failed to be recovered by that device. Unless the coal recovered by the cyclone contained clay float, there was usually less ash in it than in the larger material.

Mr. Arms said that the dry cleaner would clean coke breeze. As this was used mostly in the winter and as it absorbed large quantities of water, it was well to clean it by a dry process. As to the sizes being cleaned, Mr. Arms said the tables were cleaning up to  $3\frac{1}{2}$  in. Where the rejection was high this practice was commendable, but when only a small quantity of material had to be removed it was better to pick everything over 2 in. in diameter on a picking table.

The McComas plant, said Mr. Arms was planning to save the dust. Such a provision would add about 10 per cent to the cost of a dry-cleaning plant. This dust might be used as a pulverized fuel, but for that it was not possible to get more than 75c. per ton above the cost of screenings. It might be used for foundry core facings for which in sacks consumers were willing to pay \$10 a ton and upward.

William Emery, Jr., next described the Chance separator which also has been subjected to new and important refinements in operation. Three agitator manifolds have been placed around the cone to assist, if necessary, in keeping the sand in suspension and thus to provide a uniform medium of the required density. The revolving shaft with projecting paddles called the "agitator" does not really agitate. Its function is to break up the rising currents in the cone and thus distribute the water in the sand.

The coal rises in the overflow about 1 in. above the lip and there is about 6 or 8 in. of clear water above it. The refuse is trapped out by two valves, the upper of which admits the refuse to a chamber. The lower drops



Turnstile Prevents Crowding at Top of Shaft

Danger and delay arise from crowding. It is often necessary to compel the excess man or men who crowd on a cage to leave it. As each will claim that he has prior right, there is delay and too often danger in caging, for disagreements in dangerous places make for unsafe practices.

it to a conveyor. They should not be, of course, both open together, and arrangements have been made so that they interlock. When the refuse is dropped out of its chamber and the lower valve has been closed it is necessary to fill the chamber with water before opening the upper valve.

Mr. Emery described the installation at Mt. Union, Pa., owned by the Rockhill Coal & Iron Co. He said that it was necessary to provide two cones at this plant in order to wash the large tonnage. These cones could have been fed with unsized coal, but as some of the sizes had to be washed to a lower density than the others to satisfy the market, it was thought best to

screen before washing. This arrangement gives quite a flexible result for each of the two sizes can be given the density that its market demands. Mr. Emery said the sand loss per ton was 2 lb. and the fluctuation in ash did not exceed  $\frac{1}{4}$  of one per cent. The sulphur fluctuation was less than 0.2 per cent. No more will be said about the Mt. Union plant because it was fully described in *Coal Age*, Vol. 28, pp. 769-773.

G. R. Delamater said in discussion that it seemed evident that coal could not be cleaned satisfactorily in a single operation. Not only with jigs but with the Rheolaveur, the Hydrotator and the Roberts & Schaefer air table it was found advisable to retreat the middlings. Screenability, he declared, did not depend so much on the percentage of moisture as on the quantity of fine dust. In British Columbia coal of  $\frac{3}{4}$  in. diameter went through the screens nicely. It was wet coal, it is true, but there was no fine dust. He said that, owing to rain and snow, the coal arrived at its destination more or less wet in many instances. In some cases such coal has as much as 10 per cent of moisture.

#### NO SECOND CHANCE NEEDED

Mr. Emery said that no retreatment was needed at Mt. Union. The cone washer did its work without a rewashing of the middlings, and, indeed, it would be unfortunate if such retreatment were necessary for the coal is fragile. Thomas Fraser said that it had been remarked that "Once a middling; always a middling." He thought it might be an advantage of the Chance process that the middlings did not need a second chance.

Mr. Woody remarked that in the anthracite mines there was a large quantity of laminated material that needed crushing to liberate the ash. The anthracite operators could make a considerable gain by breaking down bone that was not really ashy coal but clean coal unhappily mated with a piece or pieces of slate. He did not believe this to be equally true of the bituminous region.

G. R. Delamater said it was possible with any process to make a middling product and use it for boiler coal at the mine boiler plant.

The question box was opened by Edward F. Shelby of Uniontown. Speaking on question No. 1 as to the best system for getting coal mined cleanly, Mr. Shelby said that ash, when delivered at destination in the case of his company, cost \$4.05 a ton. Naturally the company was anxious to reduce the quantity of the ash that cost it so dearly.

W. J. German said that he visited one mine with a clean bed of coal and was told by the superintendent that the ash in the screenings occasionally ran up to 15 per cent. He could not understand how that could happen, so they undertook to examine the mine workings together. He found that the miners were not removing the bug dust under the coal and that frequently the mining machine cut into the slate bottom. The bug dust would in that case be slate and not coal. If it had been shoveled out clean, the slate dust would have been gobbled but being left till after the coal had been overshot—and overshot it had to be because the bug dust opposed its fall—it mixed with the coal to such an extent that it could not be separated.

Question No. 2 was "In the preparation of coal which sizes would be likely to contain the most impurities?" J. W. Paul, U. S. Bureau of Mines, said that of 16 samples taken in Pennsylvania the impurities were in



higher percentage in the screenings. The same was true in Illinois, but in West Virginia the screenings showed a lower percentage than the rest of the coal, possibly because the coal was more friable. As was said later, the screenings from the Pittsburgh beds are relatively ashy because the undercut is made in coal of that character.

J. E. Tiffany declared, in answer to question No. 3, "What effect will loading machines have on the preparation of coal?" that it will increase the impurity as the machine cannot discriminate between coal and slate and as the heavier shooting made necessary when coal is prepared for mechanical loading breaks up the slate bands and distributes them through the coal. In many cases the pieces are too small for picking.

Mr. Nelson remarked that with hand loading and face conveyors the coal could be cleaned quite effectively. A man could be put along the conveyor to clean the coal further before it is loaded into the mine car. For this purpose he could be furnished with a flood light as his work would be done at a single point.

**A**T THE ANNUAL BANQUET W. C. Hood, president of the institute was toastmaster. George H. Ashley, state geologist of Pennsylvania, gave an interesting catechism on the mining of coal as his contribution. This will appear later in *Coal Age*. It related to sizes of coal deposits, thicknesses of coal mined, depth of mines, maximum royalties, sizes of coal storages and so forth, interesting maxima and minima data which the curious—and we are all curious—want to know.

Eugene McAuliffe followed with a written address entitled "How the Coal Industry Can Help Itself." To him it appeared that no more "miracles" were going to happen to give the coal industry brief periods of prosperity. "High tide was reached in 1922, and since then we have sailed windless seas, and the sails of the bituminous coal industry and organized coal-mining labor have definitely sagged. Is it not time to blaze a new path, to chart a new course? Coal, human life and human relations are being held too cheaply. What we most need is a shift of mind.

"If I were to name the one dominant need of the industry I would do so in one word, 'facts'. I know well that the theory of government fact finding is anathema to many who speak for the industry, but they who oppose it must have something special they wish to conceal beside their poverty. History is said to repeat itself, and the position now taken by those in the coal industry who are opposed to fact finding is the same as that held by the railroads for many years, publicity thereafter bringing to that industry composure and prosperity.

"As an example of what the facts might bring forth I might refer to a study made by one coal company that, taking the basic wage scale of \$7.50 per day as the index 100, a total of 46.7 per cent of its mine employees received a daily wage whose index was 146.

"I have the reputation of being an advocate of mechanical loading as a substitute for shoveling coal into mine cars by hand. I am indeed, and when apparently insurmountable obstacles seem to block the way, I hark back to the days when the present automatic car coupler was being introduced on our steam railroads, recalling vividly the opposition that came not only from that fine lot of fellows who followed the profession of coupling cars but the even greater opposition of the men who owned the cars.

"Another suggestion that would reduce capital investment and operating costs is that of multiple shifting a sufficient number of mines to meet the demand. For example, it has been computed that the total cost of mining 7,350,000 tons of coal taken out through an opening



**Rubber Hose for Guarding Trolley Wire**

Ordinary rubber hose of 3-in. diameter and costing 8c. per foot is being used exclusively to guard trolley wire at the mines of the Madison Coal Corporation in Illinois, except where salvaged hose is available.

equipped to handle 2,000 tons of coal in 8 hr. would be reduced by double shifting \$897,750.

"I rejoice that in our Wyoming properties we find that 45 per cent of our mine workers owned autos in 1926 as compared with 25 per cent in 1923. In Washington state 67 per cent of them are so supplied and 90 per cent of all the cars are of the closed type. All this is to the good; a crash in the automobile industry would tax the resiliency of our industrial structure. Let us have more of them.

"May I suggest that one of the most important jobs a mine official has is that of educating his boss. Do not be afraid to make the attempt, but continue to cudgel your brains for new ideas, new methods."

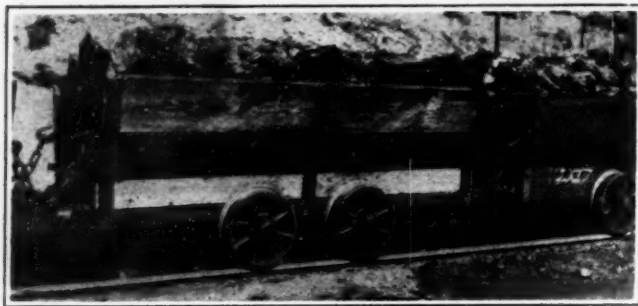
The banquet closed with addresses by a humorist and by the incoming president, J. J. Rutledge.

**A**T THE MORNING SESSION of the second day of the meeting the attention of the institute was directed to mine operation from the standpoint of safety. Prof. W. R. Chedsey, of Pennsylvania State College, read a paper prepared by William Carson and F. Carson, mine superintendent and manager respectively, of the New Zealand Coal & Oil Co., Kaitangata, New Zealand, on "Spontaneous Combustion and Fires in Coal Mines." The writers of this paper observed that the increased ventilation at present popular adds to the danger of spontaneous combustion. Spontaneous combustion and mine fires in turn interfere with ventilation.

Professor Chedsey digressed from the reading of the paper to explain that, to the best of his knowledge, in the district dealt with by the authors the beds dip 35 to 50 per cent, also that in some cases the intake is in one seam and the return in another. Considerable gas is given off and spontaneous combustion is quite common.

Continuing the paper it was stated that in earlier days the most prolific cause of mine fires by spontaneous combustion was the practice of storing waste material or gob along the pillar side in workings that were badly riddled. Heat generated in the crushing of pillars was absorbed by this refuse; sweating at the top of the piles was first noticeable. After a few days a gaseous mixture of methane, carbon dioxide and carbon monoxide together with hydrogen sulphide made its appearance. This was followed by smoke. Fires thus generated were usually quenched or the heated coal removed.

The paper described a fire that took place in a New Zealand mine in 1921, in the course of which an ignition of gas, presumably carbon monoxide as no methane had at any time been detected in cavities high in the roof in this section of the mine, occurred. This ignition was not manifested by a violent explosion, but rather by a mass of pale blue flame that traveled along the roadway against the air for a distance of approximately 120 ft. The coal being mined contained only 0.4 per cent of sulphur but was high in volatile matter.



#### Safety Chains Prevent Runaway Trips

Couplings are always likely to break when the front cars get on heavy downgrades and run away from the rear ones. The strain may be great enough to cause a coupling to break. So safety chains are desirable, and here they are placed on both sides. This is another of the safety kinks described by Mr. Forbes.

These writers advise a judicious application of water to mine fires. They have had several experiences where men were severely burned by steam and flying embers, resulting from plunging the nozzle of a water hose into a heap of burning coals. The application of insufficient water, they believe, will increase the rate of burning. Where spontaneous combustion is likely to occur it is wise to lay out workings in small sections that can be readily isolated by stoppings.

J. T. Ryan, general manager of the Mine Safety Appliances Co., took exception to the belief that carbon monoxide could be generated and accumulate in sufficient quantity during a mine fire to ignite as a body of gas. He claimed that the oxygen available would largely enter into the reaction governing the formation of carbon dioxide. Dr. E. A. Holbrook, of Pennsylvania State College, asked W. T. Yant, associate chemist of the Bureau of Mines, what percentage of carbon monoxide is needed for ignition. The latter replied that the lower limit of explosibility of carbon monoxide is more or less dependent upon other conditions; a mixture of 10 per cent of this gas may be ignited. George Riggs, of the Mine Safety Appliances Co., gave the lower limit a value of 6.44 per cent. J. W. Paul, of the Bureau of Mines, remarked that other gases, chiefly hydrogen and hydrocarbons, generated by the fire and from water could have caused the ignition under consideration. Edward Steidle, of the Carnegie Institute of Technology, told of an explosion in the Sheridan-Wyoming field believed to have been due to ignition of carbon monoxide. The gas was believed to have generated during a mine fire that originated spontaneously. No methane was detected in this particular mine either before or after the explosion.

Mr. Davis, of the Bureau of Mines, said that pyrite as a cause of spontaneous combustion can not be disregarded. An English study of this subject showed that finely disseminated pyrite tended to hasten spontaneous combustion of coals relatively low in sulphur. Harry Phythyon, state mine inspector, suggested that fires in non-gassy mines should be considered dangerous to a greater degree than is now the case if, when sealed,

they tend to generate inflammable gases that are liable to ignite and cause an explosion. Mr. Yant stated that after long study and experimentation a certain Englishman concluded that aside from the direct dangers, fires in non-gassy mines are only a nuisance. Mr. Yant claimed that mine fires caused by spontaneous combustion are rare in the United States and that the subject, consequently, is of no particular importance.

State mine inspector Richard Maize did not allow this contention to pass unchallenged. In the deep basin of the Connellsville region, he said, at least ten fires have been traced to spontaneous combustion. Gob fires along the break line are by no means rare and must arise from this cause. He thinks study of spontaneous combustion underground is important. W. C. Hood, president of the Institute, corroborated him concerning the frequent occurrence of fires attributed to spontaneous combustion in the Connellsville region.

Mr. Paul related several instances of explosions accompanying fires in non-gaseous mines. In one case a 50-ft. stretch of timbering at the mouth of an entry caught fire and the flames quickly extended for a distance of about 150 ft. The two ends of the fire zone were sealed for one day after which the outby end was opened. A week later several men attempted to enter the fire zone from the inby end. Opening the seal at that point re-established ventilation and caused a flame to creep along the roof toward the men who entered. This flame moved inby for some distance and then reversed its direction of travel and moved outby.

In another case in the Pocahontas field a fire occurred in a main intake, at a point about 500 ft. inby the opening. While this fire was being fought the roof fell and an explosion followed. This explosion was attributed to the ignition of water gas. During a large fire in a central Pennsylvania mine in 1910 three attempts to erect seals were made before success was achieved. Completed and partially completed seals were blown out twice although no gas was known to be present.

George Groves, of the Bureau of Mines, next presented a number of safety kinks in coal mining. These were illustrated by lantern slides. Several of them accompany this article. That on p. 837 shows a car block used by the Madison Coal Corporation, of Illinois. The hand of the operative is inserting an oak block,  $2\frac{1}{2} \times 3\frac{1}{2} \times 14$  in. cut to a bevel of 45 deg. on each end. This is used to control and stop trips on the shaft bottom, keeping the cars out of the sump.

The remainder of the Thursday morning session was devoted to question-box discussions led by Mr. Paul. The first question was: "What regulation or practices will minimize accidents from falls of roof and sides in coal mines?" Mr. Paul presented some statistics of recent compilation on accidents from falls. He concluded his remarks by saying that "a study of the circumstances under which accidents occur from falls of roof may lead to the development of means, measures and regulations which will give promise of materially reducing them."

R. N. Hosler, of the Pennsylvania Compensation Inspection and Rating Bureau, stated that descriptive reports covering studies of accidents are generally meager and often camouflaged. More investigation is needed if true pictures of accidents are to be obtained and proper conclusions drawn. He started a lively argument when he remarked that responsibility for safety at the working face should be borne by the operator.

The first to take a fling at this statement was W. L.



Affelder, of the Hillman Coal & Coke Co. He thinks that putting the responsibility for safety on the operator is a step backward. He believes that individuals must take care of themselves with the co-operation of the management. Mr. Affelder remarked that he did not want to create the impression that his company depended altogether on the individual for his own safety. He said, "I doubt whether any other coal company provides a larger supervisory force than the company with which I am associated."

A. R. Pollack, general superintendent of the Ford Collieries Co., defended Mr. Hosler's statement. For a number of years he and his associates have assumed direct responsibility for the safety of the worker. He believes that this is as it should be. The outcome of this belief is reflected in the rare occurrence of fatal accidents from falls of roof in his mines. Mr. Affelder came back with the remark that he "doesn't see the wisdom of imbuing workers with the idea that *care-takers* protect them from injury."

#### "KEEP-SAFE" CARDS SAVE LIFE

Nicholas Evans, state mine inspector, thinks it is wrong for a mine foreman to spot by a chalk mark the location at which the miner should place a timber unless he is certain that his order will be carried out immediately and in a proper manner. He thinks it the duty of the assistant foreman to stay on the job until his instructions are carried out. Frank Dunbar, general superintendent of the Hillman Coal & Coke Co., told about the "keep-safe" cards which his company is using as a means of reducing accidents. One of these is hung in each working place and on it are recorded all unsafe practices of the man detected by the officials. By this means Mr. Dunbar hopes that face accidents can be reduced 50 per cent.

#### MAKE POSTING RULE AND ENFORCE IT

State mine inspector W. L. Maize claims that the secret of freedom from roof accidents lies in compelling the miners to set posts accurately in accordance with company rules. J. J. Rutledge added that a man who has reclaimed 600,000 tons of coal from old caved mines in Maryland without a fatal accident attributes the secret of his success to "a good saw and a sharp ax in the possession of every man at the face."

What can be done to prevent fires in outside refuse piles at coal mines? The discussion of this question was not lengthy but it brought out the fact that it presents a rather serious problem. Several instances of fatalities due to explosions in refuse piles were cited. In one case, at a mine in the Ellsworth district of Pennsylvania, six men were killed by an explosion resulting from the ignition of methane that was generated while a tunnel was being driven through a refuse pile. Mr. Affelder stated that his company grants to small contractors, on a royalty basis, the right to pick coal from refuse piles at its mines. This scheme lessens the chance of outside gob fires.

"Concentrated Systems in Coal Mining" was the title of an illustrated paper delivered by G. B. Norris, designing engineer of the Jeffrey Manufacturing Co. As the title would indicate, this paper dealt with various schemes for applying conveyors, loading machines and other mechanical devices of a similar nature to room-and-pillar and longface mining. This paper was discussed from the standpoint of safety, together with the

question: "What effect do concentrated mining methods have on the liability to accidents?"

George S. Rice stated that he can't see how highly mechanized and concentrated systems of mining involving auxiliary ventilation equipment can be justified from the point of safety. Everybody, it seemed, wanted to know the effect of these new systems on the accident rate of mining, as measured by statistical evidence; but at present no one can do more than generalize. Mr. Rice rose to the occasion by promising that he would take up the matter with the Bureau of Mines by suggesting that a statistical study be made. This should include a comparison of the accident rates of both the new and old systems.

W. H. Howarth, state mine inspector of Brownsville, Pa., led the question-box discussions which followed. Mr. Affelder stated that concentrated mining is a gang proposition and as such possesses the danger that the noise of machinery and men drowns out sounds emanating from the roof. He remarked also that under these circumstances there is the danger of one man being injured by tools in the hands of another because they work close together. Doctor Rutledge took the position that there is safety in numbers as proved by experience with longwall mining in northern Illinois in the early days.

#### TAMP AS DEEP AS BENCH IS THICK

The next question presented for discussion was: "Does the law requiring the tamping from the explosive charge to the collar of the hole minimize the possibility of a blown-out shot, or would it be safer to require a fixed length of tamping per pound of explosive?" The suggestion offered by the second half of this question is not at all practicable in the opinion of William German, technical representative of the Du Pont Powder Co. Conditions are many and varied. Beds are thick and thin. Coal is cut at the bottom, the top or in the center; sometimes it is snubbed or sheared. Mr. German offered a rule of thumb concerning this problem, which in substance is as follows: The length of solid tamping as measured from the collar of the hole should be equal to the thickness of the bench shot.

C. W. Nelson pointed out the weakness of the Pennsylvania bituminous mining law concerning the tamping of a shothole. This statute requires that tamping shall extend from the explosive charge to the collar of the hole; it limits the maximum charge that may be used but not its length. A 1½-lb. charge may be 16 in. in length or much longer, depending upon the diameter of the cartridge.

ON FRIDAY FORTY MEMBERS of the institute made a visit to the federal experimental mine, at Bruceton, Pa. Here several interesting tests were witnessed, including a coal dust explosion. One of these tests was conducted for the first time in public. It involved the direct ignition of coal dust in the open by a charge of nitroglycerine dynamite. The charge consisted of 2 oz. of 60 per cent dynamite and on it was placed 15 lb. of Pittsburgh coal dust, 85 per cent of which would pass a 200-mesh screen. On ignition there resulted a burst of flame 15 to 20 ft. in diameter. Detonation of the explosive charge alone yielded a comparatively small flash. The test which followed involved the same procedure except that the 15-lb. of dust was a mixture containing 55 per cent of pulverized rock. Naturally, the dust did not ignite.

## Government Influence in Business Dominates American Mining Congress Sessions

Useless Duplication of Existing Powers Scored—Growth of Voluntary Fact-Finding on Coal Shown—Secretary Davis Advises Self-Regulation — Delayed Action on Standards Attacked and Defended

By Sydney A. Hale

Associate Editor, *Coal Age*

**G**OVERNMENT AND BUSINESS was the dominating theme of the twenty-ninth annual convention of the American Mining Congress, held at the Mayflower Hotel, Washington, D. C., Dec. 7-10. Emphasized most strongly in the coal sections of the program, it also came to the fore in discussions of a proper national policy with respect to mineral-bearing public lands. The more general deliberations on taxation were tinged with the same theme.

Speaking for the bituminous industry, Harry L. Gandy, executive secretary of the National Coal Association, condemned the legislative program now before the gentlemen on Capitol Hill as unconstitutional in some of its phases and a useless duplication of existing powers in others. Representing the official Washington viewpoint, Herbert Hoover, Secretary of Commerce, and James J. Davis, Secretary of Labor, warned the coal men that unless the industry demonstrated its ability to settle its own problems the public would demand that the government step in.

Although bureaucracy was vigorously denounced by several speakers, there were kind words for the two agencies which come in closest contact with the coal industry—the Bureau of Mines and the Geological Survey. The Congress went on record as favoring greater appropriations for the work of these two bureaus so that the scope of the National Safety Competition might be enlarged, more economic and scientific investigations be undertaken and bureau reports published more promptly. James F. Callbreath, secretary, declared that the part the American Mining Congress had played in the creation of the Bureau of Mines was one of the outstanding achievements of the organization.

### REITERATE OPPOSITION TO CONTROL

The convention swung away from the discussion of government and business in reviewing the economic status and the marketing outlook for the products of mines in general. It also departed from the underlying theme in the early part of the final session, which was given over to an outline of what has been accomplished in the way of standardization of mine equipment and practices and what the future holds for mechanization. In the closing minutes of the convention, however, the Congress again returned to this theme when it adopted a resolution reiterating its opposition to the further extension of government control in the domain of private business and to the singling out of one industry, such as coal, for regulation.

Stanly Easton, Kellogg, Idaho, was elected president for 1926-27. William H. Lindsey, Nashville, Tenn., was advanced from second to first vice-president; Robert E. Tally, Clarkdale, Ariz., from third to second vice-

president. George B. Harrington, president, Chicago, Wilmington & Franklin Coal Co., was elected third vice-president.

Hugh Shirkie, president, Shirkie Coal Co., Terre Haute, Ind.; J. G. Bradley, president, Elk River Coal & Lumber Co., Dundon, W. Va.; L. S. Cates, Salt Lake City, Utah, and Mr. Easton were re-elected directors for a term of three years. Archibald Douglas, New York City, was elected a director, succeeding W. J. Loring, Los Angeles, Calif.; John T. Skelly, Wilmington, Del., succeeds S. Pemberton Hutchinson, president, Westmoreland Coal Co., Philadelphia, Pa.

Messrs. Easton, Douglas and Sidney J. Jennings, New York City, were chosen to constitute the executive committee for the new year.

### GANDY ANALYZES BILLS

Analyzing the Parker and Copeland coal bills, Mr. Gandy pointed out that these measures direct the Bureau of Mines to collect and make public reports on production, distribution and storage data, prices, wages, working conditions, profits, intercorporate relationships "and all other factors affecting the operation of the coal industry and appropriate for consideration in the determination of a sound public policy in regard to said (coal) industry." In the Parker bill the scope is expanded to take in "the several mineral and manufactured fuels," which the speaker interpreted as including coal, petroleum, natural gas, peat, coke, artificial gas, charcoal, petroleum coke, fuel oil, all cracked oil, briquets, pulverized fuel, alcohol and fine wood chips.

Both bills seek to give the Bureau of Mines "access to and the right to copy any book, account, record, paper or correspondence relating to any matter which the Bureau of Mines is authorized to investigate." To follow out the provisions of these bills, asserted Mr. Gandy, would entail great expense to the government in collecting and publishing and to the coal men in reporting and would "leave the industry without a shred of privacy." Moreover, it was the speaker's view that the bills constitute an attempt to use the general right of search where the commission of an offense is not alleged—an attempt recently held unconstitutional by the U. S. Circuit Court of Appeals for the Northern District of Illinois in construing the Packers' and Stockyards' Act. Purely intrastate business also would be embraced.

For the most part, continued Mr. Gandy, data which would not "involve the disclosure of intimate business details which might readily be used in prejudicial ways" are already covered in reports now prepared by various government agencies on the basis of information voluntarily furnished by coal producers. This information includes data on production, distribution, consumption



and stocks, published by the Bureau of Mines; data on wages, earnings and hours of labor, covered by the Department of Labor; data on exports and imports published by the Department of Commerce; statistics on income, contained in the reports of the Treasury Department and the elaborate periodic surveys of the Bureau of the Census.

Limitation on the expansion of the present statistical activities of the Bureau of Mines relating to coal, insisted Mr. Gandy, is due not to lack of co-operation by the coal men but to lack of adequate appropriations



Harry L. Gandy

Executive secretary of the National Coal Association, who condemned certain phases of the current legislative program.

by Congress. "It does seem inconsistent," he observed, "for legislators to espouse the passage of bills to inaugurate a fact-finding program in the light of the continued refusal of the legislative body of which they are members to finance adequately a practically identical program, which through voluntary co-operation, is proceeding in a satisfactory manner."

There is no dearth of price statistics. The Department of Labor, for example, publishes a monthly compilation of retail prices in a large number of cities. Mine prices are currently published by *Coal Age* and its contemporaries. Certain groups of operators also have established bureaus to publish data on past sales and the National Coal Association is working on a program to make this service nation-wide. "When it is considered that it was only a year and a half ago that the U. S. Supreme Court removed the uncertainty as to the legality of such statistical activities, it is apparent that the bituminous industry has made commendable progress along the line of the admonition, 'know thyself.'"

#### AGAINST COMPULSORY MEASURES

Summarizing his conclusions on the fact-finding features of the bills, Mr. Gandy said that voluntary reports now were being made on the majority of the subjects enumerated in these measures. "The industry opposes the suggestion to put such reports on a compulsory basis, not because of any unwillingness to furnish the information, but because it resents the implication involved in the selection of this industry for such discriminatory treatment. It questions the constitutionality of the proposed plan of compulsory reporting in a field where the federal government does not have jurisdiction, but, at the same time, it desires to avoid the turmoil and confusion incident to the

attempt by a fact-finding bureau to act under such a law. Finally and most fundamentally, it fears the results that would flow from any act which seeks to give any governmental agency in peace time and where no offense is alleged to have been committed, 'access to and the right to copy any book, account, record, paper or correspondence.'"

Mr. Gandy maintained that it "is difficult to discover wherein the labor provisions of either bill serve any useful purpose. As far as mediation under a government agency is possible or practicable, it is already in force by authority of the organic act of the Department of Labor. Representatives of that department have frequently acted as arbitrators at the request of both parties to the dispute, who have agreed in advance to accept the findings of the arbitrators. Compulsory enforcement of the awards of boards of arbitration is so contrary to the spirit of American institutions as to be out of the question."

Compulsory arbitration, Mr. Gandy stated, has failed in New Zealand, Australia and elsewhere. It is provided for in neither of the two bills under consideration. Voluntary arbitration is impossible when one of the parties to the dispute declines, as the United Mine Workers did during the 1925-26 hard coal strike, to accept such a method of settlement. Both the miners and the bituminous operators indorse the statement of Secretary Hoover that the provisions for future settlements embodied in the anthracite agreement of last February "could only be of value if carried out within the industry itself and not by intervention of the government."

#### NO CALL FOR REVIVAL

Waiving the question of the constitutionality of any measure authorizing the President to declare the provisions of the Emergency Coal Act of 1922 again oper-

J. G. Bradley

President, Elk River Coal & Lumber Co., Dundon, W. Va., one of directors re-elected for three-year term.



ative under emergency conditions, Mr. Gandy argued that there was no occasion for such revival. Peace time control of prices, he contended, is clearly without constitutional warrant. Control of distribution of coal in interstate commerce is within the power of the government. That control, however, already is vested in the Interstate Commerce Commission.

The powers of the Commission under paragraph 15, section 1 of the Transportation Act of 1920 are as broad as could be asked. "Moreover, the emergency

justifying the use of this power by the Commission need not be an emergency caused by inadequate transportation, but may consist of just such shortage of fuel as it is the purpose of this proposed emergency legislation to control." The power was so used in 1922 and approximately one-half of all the service orders issued under this provision since the enactment of the law have related to coal.

Efforts to retain in permanent federal ownership, supervision and control public lands which may be found valuable for metalliferous mineral were opposed by former Congressman Frank W. Mondell of Wyoming. He advocated control and disposition by the states of public lands and their resources for development under private operation, but saw little chance of modifying the policy of government "until it is demonstrated that the satisfactory development of the nation's resources cannot be successfully accomplished under the difficulties and delay which attend a long distance bureaucratic control."

#### RATIONALIZE ANTI-TRUST LAWS

Recent decisions have done more to rationalize the conception of the proper field of the anti-trust laws and to bring "judicial determination of the question presented more nearly in harmony with correct established business practice than in all the period of the life of these laws heretofore," was the statement made by Nathan B. Williams, associate counsel of the National Association of Manufacturers, who addressed the Congress on "A Sensible Application of Our Anti-Trust Laws." But the maintenance of such an application is to be accomplished only by the constant vigilance of established business activity. "The individual man is helpless against trained personnel backed by public money."

The general warning that industry must settle its



C. E. Bockus

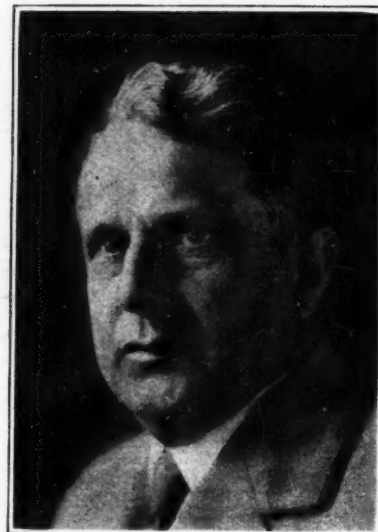
Chairman of the board, Clinchfield Coal Corp., who commented on concerted action of operators.

own problems if it would forestall government interference, given by Secretary Hoover at the first day's session of the Congress (*Coal Age*, Dec. 9, p. 816), was repeated with direct application to bituminous coal by Secretary Davis when he addressed the delegates at the morning session on Dec. 8. The public, he asserted, insists that coal be so reorganized that it may no longer be said that the coal industry afflicts the country with periodic nation-wide strikes. "Where all other great American industries are organized on a basis of orderly,

scientific management, the country now looks to coal to get in line with these others and set another example of wise, businesslike operation."

#### DAVIS DEMANDS UNITY

More unity within the industry was demanded by the Secretary of Labor. The country is sick of "the chronic chaos that now exists in mining, with its recurring stoppages or threats of stoppage." Despite the help extended in the past decade by various government agencies, "not a single step has been made toward tak-



James J. Davis

Secretary of Labor, who again urged the coal industry to call a general conference to discuss self-regulation.

ing advantage of all their labors." Accident rates remain too high, steam coal is sold too low, potential capacity continues to be greatly in excess of consumptive demand, intermittency still is the rule, nothing has been done to flatten out the curves or to cure the wide fluctuations, labor maladjustment is unrelieved.

"I can see but a single simple way out," said Mr. Davis. "That is production of coal sensibly regulated to meet the demand. I do not mean regulation by government decree but by the industry itself, with due regard to the law. To bring order out of this chaos larger units of ownership or management may have to be formed, but only by this amalgamation of existing companies can the necessary central direction be effected, with output and employment stabilized, wages and prices steadied and unprofitable workings closed.

#### WOULD MODIFY LAWS

"I am sure that if existing federal laws have ceased to meet existing conditions Congress will make any change necessary for the well-being of the industry, consistent with the well-being of our people as a whole. Let me therefore urge again upon the delegates to this Mining Congress the pressing importance of a move to assemble a conference covering every bituminous district in the United States. Controversial matters should have no place at such a conference. The sole purpose of the meeting should be a practical plan to make the mining of coal a prosperous industry, providing regular operation with sufficient output to meet commercial and domestic demands, to plan the expansion of export trade, to stabilize markets, to provide regular employment for workers, to organize shipping facilities. In addition to this, needed legislation should be taken up, to interest railroad management and manufacturing interests more in the prosperity of mining



than in securing coal for themselves at prices that make for mining at cost or at a loss.

"To such a conference you could invite the U. S. Attorney General, the Secretary of Commerce, the Secretary of Labor, the Federal Trade Commission, the Interstate Commerce Commission, and other government authorities, and I know they would be glad to lend their aid. And I am sure that if you follow the plan here outlined you will not only have a unified labor program, but a unified industry."

Commenting upon the Secretary's speech, C. E.



H. N. Taylor

President, U. S. Distributing Corp., who outlined difficulties confronting the bituminous coal industry.

Bockus, chairman of the board, Clinchfield Coal Corporation, remarked that, if the operators ever attempted concerted action to maintain steam coal prices on a profitable basis, "they would have their choice of just two things—Atlanta or Leavenworth." H. N. Taylor, president, U. S. Distributing Corporation, said that the benefits of low steam-coal prices were passed on to the householder in the cost of other materials and services he purchased. The average family used ten tons of coal as coal, but twelve tons came to it in the form of electricity, gas, ice and other commodities.

In a paper on "Labor Relations in Metal Mining," Cleveland Dodge, Phelps Dodge Corporation, described the management-employee representation plan modeled on the organization of the federal government in effect for the past five years at Bisbee, Ariz. Members of the lower house are chosen by the employees at semi-annual elections; members of the upper house are selected from and by the foremen and bosses. The executive branch is represented by the management. A supreme court composed of a representative of the company, a representative of the management and a third member from the community passes upon appeals arising out of grievances among employees and the company. The "legislative" branch can override the management's veto by a two-thirds vote. Over 500 questions on wages, working conditions, standards and safety have been handled under this scheme.

#### TAYLOR OUTLINES PROBLEM

At the afternoon session Mr. Taylor answered the cry, "Why don't you do something," by explaining the complexities of coal distribution, with production scattered over twenty-eight states, diverse demand for sizes and grades and wide variations in mining conditions. He laid great stress upon frozen rate adjustments which

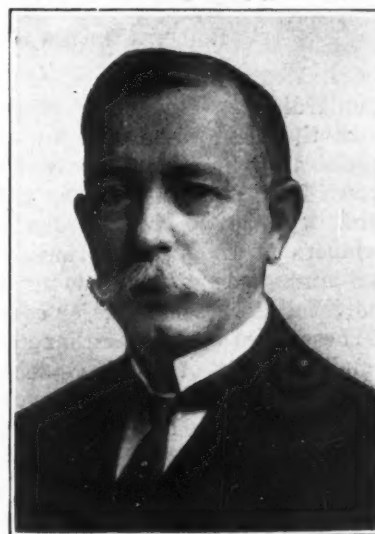
deprived some fields of the advantage of their proximity to markets. Rates have been frozen at inequitable levels because the secret rates in effect in 1906 were made the published rates with the enactment of the Hepburn amendment to the Act to Regulate Commerce.

Theoretically the situation might be stabilized by district combinations in which profits for the district would be allocated to the individual units on the basis of their appraised value regardless of whether the units were in operation or not. Under that system, mines not needed to meet current demand could be closed down without adversely affecting the interests of their owners. Competition between districts would still remain, only local and internal competition would be eliminated. Human nature bars the success of such a scheme "because you would find many men who would thus lose their jobs when economies were put in who would oppose such a thing."

Shutting down high-cost mines, Mr. Taylor emphasized, was not as simple as it seemed. The effect upon industry generally as well as upon the mine must be considered. "If you shut down the high-cost mines, as the Secretary of Labor suggested, you ruin the merchants and everybody else who have built up their business on the production of those mines. If you change the freight rates, you will ruin many other industries that have built themselves up around the coal supply."

#### STABILIZATION THROUGH STANDARDIZATION

Stabilization through standardization was a thought advanced by H. M. Chance. Those industries which have been most successful in stabilizing their business, he said, have been those selling a standardized product. Outside of smokeless, coking and bunker coal, there has been little or no standardization of grades in the bituminous industry. Some operators are selling as second-grade steam coal, fuel which could be used for byproduct coke if properly cleaned. The road to standardization,



H. M. Chance

President, H. M. Chance Co., consulting engineers, Philadelphia, who advocated stabilization through standardization.

however, will be a long one because of the many factors to be taken into account. Partial standardization will be of little value because many coals are interchangeable for a number of purposes.

Centralized control of local spending policies is the only solution to the problem of increasing state and local taxation, according to L. R. Gottlieb, economist, who opened the session on taxation on Thursday. The system of having a central body to pass upon tax levies

had been tried in Indiana with great success. Not only were actual levies reduced but the system operated as a psychological check upon unwarranted levies since local tax bodies hesitated to make levies unless they were confident they could justify the expenditures proposed. Local taxpayers' associations also have had a restraining influence upon unwise projects, said A. G. Mackenzie, secretary of the Utah chapter of the Congress.

Walter A. Staub criticized the policy of the Treasury in demanding waivers from taxpayers to permit revision of returns and assessment of additional taxes after the expiration of the legal time limit for such re-examination, while refusing to recognize just claims for refunds after the expiration of the legal period for making such claims. The rule, he thought, ought to work both ways.

Discrimination against corporations under the present income tax law was discussed by H. B. Fernald and the Congress later adopted a resolution favoring the repeal of the additional one per cent tax on corporations in the last revenue law, asking for a return to the 12½ per cent basis. The work of the Congressional joint committee on internal revenue taxation was described by McKinley W. Krieger, chief of the tax division of the Congress. J. G. Korner, Jr., chairman of the United States Board of Tax Appeals, told the delegates how his board functions.

At the annual banquet held on Thursday evening, Senator Tasker L. Oddie of Nevada was toastmaster and J. G. Bradley, Senator William H. King of Utah and Noah H. Swayne, 3rd, of Philadelphia, were the speakers. Mr. Bradley talked briefly on the fight of West Virginia to free itself from the domination of the United Mine Workers. Senator King painted a picture of a collapse in American prosperity unless this country abandoned its traditional policy of isolation. Mr. Swayne, after entertaining his audience with humorous stories, closed with an appeal for greater interest in voting as a requirement of American citizenship.

#### ROBERTS REVIEWS PROGRESS

Col. Warren R. Roberts, chairman of the national standardization division of the Congress, reviewed the work that had been done by that division since its organization in 1919. In coal, the organization had grown from eight committees with seventy-seven members in 1920 to twenty-nine committees with 273 members at the present time. There was a general coal-mining committee made up of the chairmen and the chairmen of the eight major coal committees.

These eight committees handled questions relating to standardization of: (1) Underground transportation; (2) mining and loading; (3) mine drainage; (4) mine ventilation; (5) outside coal handling; (6) underground power transmission; (7) power equipment, and (8) mine timbering. Standards had been agreed upon and submitted four years ago to the American Engineering Standards Committee by the Congress committees on underground transportation, ventilation, underground power transmission and power equipment. Colonel Roberts stated that the standardization division had passed a resolution recommending the withdrawal of all reports now with the A.E.S.C. which had not reached a stage of progress before that committee which would justify leaving the reports there.

Dean E. A. Holbrook, State College, Pennsylvania, defended the work of the A.E.S.C. Approval of stand-

ards by organizations like the American Mining Congress or the U. S. Bureau of Mines is not enough, he said, because "the mining industry is not a separate and self-contained industry shut off by walls from every other industry, but it touches at different points and blends into other industrial groups, such as civil engineering, the mechanical, electrical, transportation, chemical, metallurgical and other groups and fields of work. Since all these are represented in and function through the A.E.S.C., is it not the logical and simple method for any group, after building up their own standards, to nationalize them through the existing machinery, rather than to try independently to set up their own machinery?"

#### CANNOT HURRY STANDARDIZATION

The standards for permissible explosives, rock-dusting and electrical equipment in coal mines already have received the formal approval of the A.E.S.C. Some of the other tentative standards mentioned by Colonel Roberts, said Dean Holbrook, will be considered at the January meeting of the committee. "Standardization of this kind," he added, "is not a work which can be hurriedly rushed to completion in a few weeks, but, since it is nation-wide in scope, it proceeds slowly and orderly and it will go on and develop as long as the industry exists."

"For the immediate future we can do most effective and far reaching work in developing and approving more standards for safety engineering. The complex, conflicting and unscientific state laws and regulations, especially in coal mining, are in their elements only safety engineering standards. Their national standardization is a work that will affect for the better every miner, every operator and every inspector. I look forward to seeing a complete mine safety code built up of the separate units of ventilation, hoisting, transportation, timbering, working at the face, electricity, shaft sinking, machine mining and others."

"How Efficient Management Can Help Solve Industrial Problems" was the subject of a brief paper by Eugene McAuliffe, president, Union Pacific Coal Co. First, he said, railroads and other public utilities should take the leadership in consumer coal storage. Second, every effort should be made to widen the field of mechanization in the coal mines. This would have an important effect upon the labor problem. Restricted immigration has cut the supply of new workers below replacement demands on the present basis of operation. Mine work must be made attractive to the better educated sons of the miners of today. The more a mine is mechanized the more it will attract this more intelligent class of labor. As proof of this, he cited an operation which had employed a number of high school graduates who wanted to continue at the work.

Probably the greatest avenue for improvement and reduction in costs lies in multiple-shift operations. In this the United States lags far behind Europe. The savings in capital charges and economies in maintenance costs in which the time element predominates, in timbering and ventilation would be enormous.

H. K. Porter, Hyatt Roller Bearing Co., reported a gratifying growth in interest and membership in the manufacturers' division of the Congress. The next coal exposition, he announced, will be held at Cincinnati, Ohio, May 16-20, 1927. He urged that there be a larger attendance of foremen and superintendents at that exposition.



## Machine Loading Gains Rapidly In Last Three Years\*

By Raymond Kenny and F. G. Tryon

A RAPID increase in machine loading is shown by a statistical canvass just completed by the U. S. Bureau of Mines. The quantity of bituminous coal loaded underground by machine jumped from 1,879,000 tons in 1923 to 6,243,000 tons in 1925, and a further large increase seems assured for 1926. The remarkable growth of machine loading may be seen from a comparison with machine cutting or with stripping. More bituminous coal is now loaded by machine in the United States than was cut by machine in 1890 or than was won by stripping as late as 1917.

The six and a quarter million tons machine loaded in 1925 were handled by 340 machines installed in 95 mines. Fourteen other mines had 42 additional machines, but did not report the tonnage loaded by them. As most of this group were experimental installations, they loaded only small amounts of coal mechanically. Details are given in Table I.

The study referred to brings to completion an inquiry begun through the U. S. Geological Survey in 1921. For the years before 1923 the results obtained did not permit of statistical tabulation. It is clear, however, that the number of machines in use and the tonnage loaded were much less than in 1923. For statistical purposes the commercial use of the loader may be said to begin in 1923.

The method of gathering information has been as follows: Every known manufacturer of loading equipment was asked to furnish a list of the mining companies that had bought, or installed, machines. The companies thus indicated were then asked to supply information as to the number of machines in use, the mines where they have been installed, the dates of installation, and the tonnages of coal loaded by them. In addition to the list of users furnished by machine manufacturers, and the operation and production data furnished by mine operators, a further check against omissions was made by an inquiry in the annual statistical questionnaire sent to all mine operators. Thus, two sources of information have been used. The Bureau takes this occasion to acknowledge gratefully the assistance given by the many companies which have furnished data.

### MACHINE CLASSIFICATION WAS DIFFICULT

For the purpose of this study a loading machine has been defined as one that gathers coal at the face in an underground mine and loads it mechanically onto either mine cars or conveyors. Drag scrapers have been included when hand loading was eliminated. Belt or shaking conveyors, whether at the face or elsewhere, have not been counted, unless the act of loading onto the conveyor was performed mechanically, the purpose of the study being to determine the degree of substitution of machine work for hand shoveling. Difficulty was experienced in classifying elevating conveyors, such as the Jeffrey pit-car loader and one or two other types, which require some hand work to get the coal onto the conveyor but which nevertheless eliminate most of the labor of lifting from floor to mine car. Because of this

potential saving of hand shoveling it was decided to include such machines in the figures although, of course, they represent a less complete mechanization than do loading machines proper. Pit-car loaders have been most used in Illinois and account for a large part of the 1,293,929 tons of machine-loaded coal reported from that state. Surface stripping operations, which are covered elsewhere in the Bureau's statistical reports (Coal in 1923, by F. G. Tryon and L. Mann, p. 583), are not included. No attempt has been made to compare the number and performance of different makes or types of machines. Similarly machines belonging to the manufacturer and temporarily installed for demonstration or experiment have not been counted.

The columns of the table under the heading "Other mines reporting machines but not tonnage loaded," include two types of report—first, cases that were clearly reported as experimental; and second, cases where the operators did not report the tons loaded but did state the number of machines in use. In a great majority of the latter cases, the operators, when questioned further, stated that the use of machines was still in an experimental stage and that they were not ready to report tonnage figures. Were tonnages available for these operations, they would probably add little to the 6,243,104 tons reported by the mines that furnished actual tonnage figures. It may be assumed therefore, that practically all of the 42 machines used in 1925 for which no tonnages were reported, were employed experimentally and the same would apply to the 60 machines so reported in 1924, and the 16 in 1923.

### LOADER RECEIVED LIKE UNDERCUTTER

In considering the rate at which mechanical loading can be introduced the early experience with machine cutting is of interest. Sixty-nine per cent of the soft coal mined in 1925 was cut by machine, but this large percentage was the result of 45 years of sales effort and adaptation, to say nothing of many years of preliminary experiment before a workable machine could be devised. The machine cutter was invented in England and began to be manufactured for sale in the United States about 1880. Prior to 1888 a total of approximately 735 machines had been sold by American manufacturers, many of which were doubtless soon discarded (E. W. Parker, Coal in 1897, Mineral Resources, II, p. 324). The first statistical survey of cutting machines covered the year 1891 and found 545 machines in use with which 6,211,732 tons were mined. As the total product for that year was 117,900,000 tons, it will be seen that in the eleven years from 1880 to 1891 machine cutting had been extended to 5.3 per cent of the output. The sale of coal-loading machines on the other hand has been actively pushed for barely five years, and in this time the tonnage loaded by machine has come to equal that cut mechanically after eleven years of active effort, though because the output of today is so much larger the proportion loaded by machine is still only 1.2 per cent of the total. From 1913 to 1925 the increase in machine loading amounted to 233 per cent.

In 1925 the leading states in the order of their production of coal by machine loaders were: West Virginia (including Tazewell County, Virginia), Illinois, Indiana, Wyoming, Pennsylvania, Virginia (except Tazewell County), and Kentucky. The total production figures of these states, and the per cent of coal that was machine loaded, are as shown in Table II.

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Table I—Loading Machines in Bituminous Coal Mines in the United States, 1923-1925

State	1923				1924				1925			
	Number of Mines	Number of Machines	Net Tons Loaded by Machines	Other Mines Reporting Machines but not Tonnage Loaded*	Number of Mines	Number of Machines	Net Tons Loaded by Machines	Other Mines Reporting Machines but not Tonnage Loaded*	Number of Mines	Number of Machines	Net Tons Loaded by Machines	Other Mines Reporting Machines but not Tonnage Loaded*
Alabama.....	3	†	†	..	3	†	†	4	2	†	†	2
Arkansas.....	..	..	..	..	..	..	..	1	1	†	†	..
Colorado.....	1	†	†	..	3	†	..	1	2	†	..	..
Illinois.....	2	†	†	..	4	28	259,584	3	16	102	1,293,929	4
Indiana.....	4	18	77,542	..	8	37	325,117	4	10	62	1,030,490	2
Iowa.....	..	..	..	..	1	†	†	..	3	5	18,200	..
Kansas.....	..	..	..	..	1	†	†	..	..	..	..	..
Kentucky.....	5	8	34,015	7	6	15	96,077	2	6	11	157,862	1
Maryland.....	2	†	†	..	2	†	†	..	1	†	†	..
Michigan.....	..	..	..	..	..	..	..	..	2	†	†	..
Ohio.....	..	..	..	1	3	10	47,357	1	2	†	†	..
Oklahoma.....	..	..	..	†	1	†	†	2	..	..	..	..
Pennsylvania.....	5	9	52,014	1	11	20	153,287	1	14	34	233,023	1
Tennessee.....	..	..	..	..	1	†	†	1	1	†	†	..
Virginia.....	3	7	40,939	..	5	11	141,351	..	4	7	224,032	..
West Virginia§	33	54	1,367,688	4	32	67	2,012,790	12	26	58	2,480,768	4
Wyoming.....	2	†	†	..	2	†	†	..	5	30	579,272	..
Undistributed	..	29	307,528	2	..	31	459,959	25	..	31	225,528	22
Total.....	60	125	1,879,726	13	83	219	3,495,522	32	95	340	6,243,104	14

\* In most of these mines the use of loading machines was in the experimental stage only.

† Included in "Undistributed" to avoid disclosing individual operations.

‡ Excluding Tazewell County. § Including Tazewell County, Virginia.

¶ Includes machines of the pit-car loader type.

Compiled by U. S. Bureau of Mines.

West Virginia leads in tonnage loaded by machine but is outranked in per cent of total production mechanically loaded by Wyoming, Indiana and Virginia.

Growth of the use of loading machines was most rapid in 1925 in the states of Wyoming, Illinois, and Indiana, although actual increases were shown in West Virginia, Pennsylvania, Kentucky and Virginia.

The leading producing district in the entire country in the use of loading machines was the Pocahontas field, extending from McDowell County in southern West

from Pike, Perry and Johnson counties in the eastern portion of the state and the remainder was from Union and Muhlenberg counties in western Kentucky.

Preliminary reports received from manufacturers of loading machines and mine operators indicate that when the complete figures for 1926 are collected, a further increase will be shown in the use of loading machines, in the number of mines employing them, and in the total tonnage of machine loaded coal.

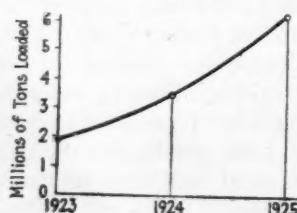
Table II—Machine Production by States

	Total Production	Machine Loaded NetTons	Per Cent
West Virginia (including Tazewell Co., Va.).....	124,509,000	2,481,000	2.0
Illinois.....	66,909,000	1,294,000	1.9
Indiana.....	21,225,000	1,030,000	4.8
Wyoming.....	6,553,000	579,000	8.8
Pennsylvania.....	136,928,000	233,000	2.0
Virginia (exclusive of Tazewell Co.).....	10,671,000	224,000	2.1

Virginia, to and including part of Tazewell County, Virginia. Less than one-sixth of the machine-loaded tonnage for West Virginia was from all the other fields of the state combined. It was reported principally from Logan, Harrison, Raleigh, and Fayette counties.

Machine loaded tonnage in Illinois in 1925 came principally from Saline, Marion, Franklin, and Jackson counties, in the southern Illinois fields. The bulk of the Indiana machine loaded tonnage was in Sullivan, Pike, Vigo, and Preston counties. More than half was in Sullivan County alone.

Of the Wyoming machine-loaded tonnage more than half was reported from Carbon and Sweetwater counties in the southern Wyoming field, the remainder being reported from Sheridan County in northern Wyoming. The Pennsylvania tonnage came principally from Cambria, Indiana and Jefferson, with a small proportion from Somerset and Wyoming counties. Almost two-thirds of the Kentucky machine tonnage was reported

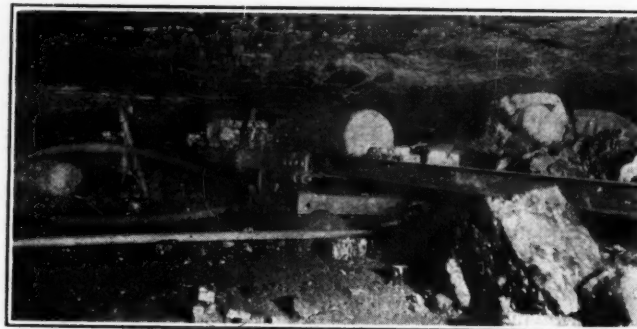


#### Increase in Machine Loading

Although as yet only three points on the curve can be located they show that its trend is definitely upward and that its inclination is increasing rapidly.

### Keep Boilers Free from Scale and Pitting

Few boiler plants at coal mines are better equipped to avoid the dangers and wastes resulting from scale and pitting than those of the Gallup American Coal Co., at Gamarco, near Gallup, N. M. Since the plant was first installed evaporator units have been provided to supply the boilers with make-up water. Consequently, when the latter are examined, as is the practice every three months, no scale or pitting is found. The water used in the spray pond for condensation is derived from the mine and is filtered through charcoal. The water in the sump, however, is not used for this purpose. Occasionally, the sump is completely dewatered into the skip. The latter is then hoisted, and the water is discharged through a valve in the skip bottom taking the settleings with it. A portable centrifugal pump is used for filling the skip.



#### Robbing a Wide Pillar in Low Coal

This is a view in the mine of the Cedrom Coal Co. at Cedrom, Ala. The bed which is only 27 in. thick is locally known as the Cedrom, but is believed by some to be an upper split of the Mary Lee. This view was taken in rear of the conveyor serving the 120-ft. face which yields 65 to 70 tons per cut. The 20-in. face conveyor is driven by a double-acting air engine of such diminutive size that it is installed under the conveyor trough, the jacks anchoring it in place appearing to the left in this picture.



## Underground Operation

### Supports for Locomotive Motors Require Flexibility

According to Fred W. Vodoz in *Electrical Mining*, in all locomotives of the usual two- or three-motor type each motor is carried partly by the axle which it drives and partly by a support attached in some way to the frame. Axles and frames must be free to move independently, to a greater or less extent. Accordingly the motor support must provide a certain flexibility for this relative movement, since the gearing of the motor

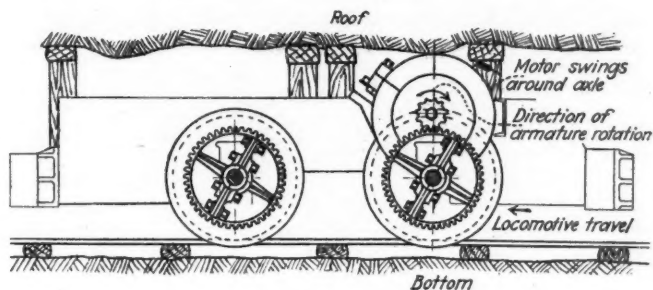


Fig. 1—Destructive Action of Motor When Freed

Upward swing of unsupported motor when traveling forward caused by the failure of its supports to the frame. Proper inspection to provide adequate maintenance will decrease the liability of such failure.

to the axle prevents any possibility of providing flexibility at the axle supports of the motor. The armature must always be parallel to the axle and move with it, or broken gears are sure to result.

The motor support should be strong enough to resist natural tendencies of the motor to revolve around the axle, rather than drive it. Were the motor free of adequate support, rotation of the armature upon application of power would tend to cause the armature pinion to revolve around the axle gear as though this gear were a circular rack. It is by resisting this tendency that the motor turns the axle causing the locomotive to pull its load.

When the locomotive is running in such direction that a motor is ahead of the axle which it drives as in Fig. 1 the motor if released from its support, will tend to swing upward. If travel is in the opposite direction—the motor following the axle which it drives—the tendency under similar circumstances will be downward as shown in Fig. 2. In either case there is danger of wreck or personal injury, as the motor fouls the low roof or swings over into the motorman's cab, or as it fouls the ties and causes derailment. The motor thus released under power becomes a destructive agent, of heavy weight and with great force behind it—certain to cause damage to the locomotive and more than likely to injure or kill those near it.

Motor supports are easily made amply strong for proper service conditions, but they may fail if not prop-

erly maintained, or if constantly overloaded, or more correctly, misloaded. Such misloading occurs if there be restriction of the necessary freedom to accommodate the relative movement necessary between axles and frames, or in other words, the necessary departure from

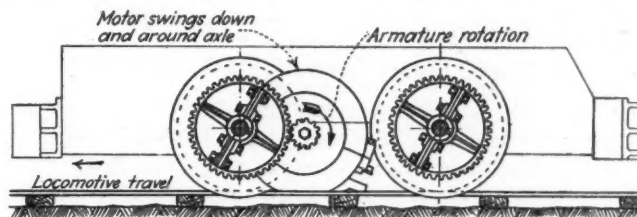


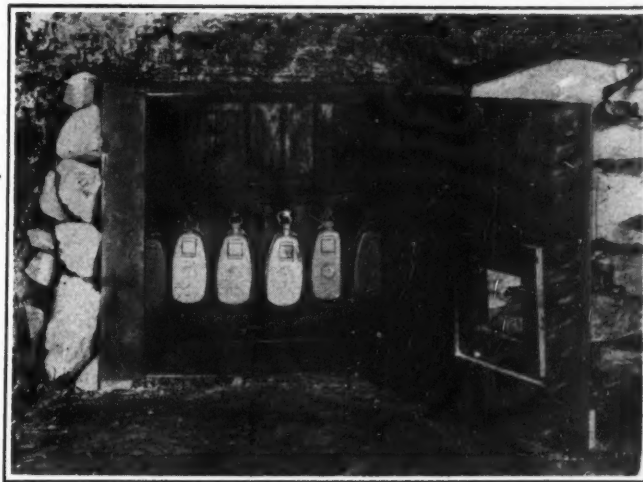
Fig. 2—Downward Action Equally Dangerous

When the supports of the locomotive motor, opposite the motor shown in Fig. 1, break, the swing of the freed motor is in the opposite direction. Such possible disastrous results emphasize the necessity for frequent inspections because these supports are subjected to severe service.

the ideal positions which obtain when the locomotive rests or runs on perfect track.

### Self-Rescuers Cached in Penelec Mines

Records show that about 75 per cent of the victims of past mine disasters met death through asphyxiation. It is logical to believe that most of them would have



A Cache of Self-Rescuers

At the mouth of each heading in the Penelec mines is located a box which is embedded or cached in solid coal as a protection against the force of an explosion. In this box are hung at least as many rescuers as there are men in the section. The door is locked by the sliding bolt shown.

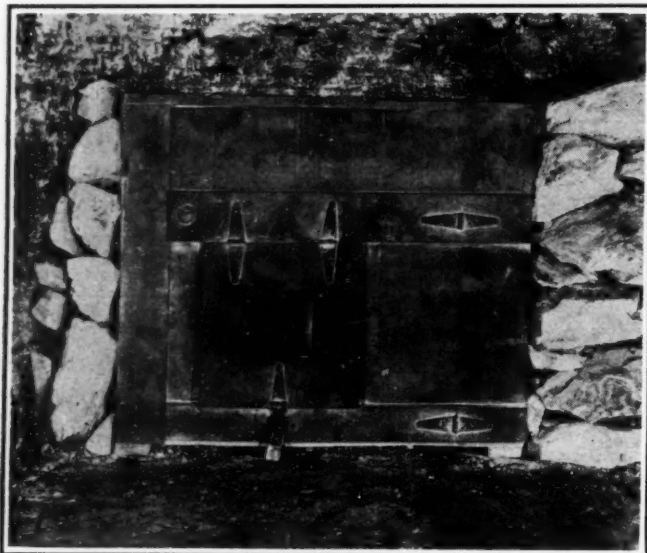
escaped if they had had protection against afterdamp for but a few minutes. The self-rescuer gas mask furnishes protection against afterdamp for at least 30 minutes and consequently is beginning to be looked upon as a necessary piece of equipment for every underground worker.

The ideal arrangement would be to have each man carry a self-rescuer on his belt during the entire time he is underground. To be successful, this practice must be backed up by frequent inspections to make sure that the outfit is in proper working order and is being carried. A suggested procedure at closed-light mines is to keep the self-rescuers in the lamphouse during off-shift hours and to distribute them with the lamps each morning.

The Penelec Coal Corp., with mines in central Pennsylvania, has provided a self-rescuer for each of its underground employees. As many of these equipments as there are men regularly employed in each section are kept in a box located at the mouth of the heading serving that section. It is the rule also to include two extras, intended for the use of whoever may be in the immediate locality in time of emergency although not ordinarily employed there.

#### EACH CACHE IS WELL PROTECTED

As shown in the accompanying illustrations, these boxes are cached in recesses dug into solid rib coal. This, of course, is done in order to protect them from the force of a possible explosion. Each box is painted red and therefore stands out prominently against the white or gray background of the rock dust with which the rib is treated. It is provided with a double door, that is, a small door hung within a larger one. The



Exterior Construction of Self-Rescuer Box

The construction is such that a door is provided within a door. The big door is locked by a slide bolt inside the box. Access to this bolt is gained either by opening the padlock on or breaking the glass in the smaller door.

little door is fitted with a pane of glass and is kept closed and under lock. This allows leisurely access to the interior by those in possession of the key. The main door is fastened on the inside by means of a sliding bolt. This can be readily drawn back by breaking the glass in the little door and inserting the hand. During the year and a half that these boxes have been installed not one of them has been maliciously disturbed.

Those whose duties take them to all parts of the mine carry their rescuers with them; members of the engineering corps receive theirs before entering the mine. All employees are instructed in the use of the equipment.

Proof that miners are susceptible to safety habits is furnished by an incident that occurred in one of the

mines of this company. A foreman in starting up a pillar section failed to provide easily accessible self-rescuers. The miners soon told him, however, that they would feel safer if the equipment were installed in their section, in accordance with the company's regulation.

### Use Iron Culvert Pipe for Smaller Overcasts

At the Navajo No. 5 mine, Gamerco, near Gallup, N. M., wherever overcasts are required to carry a large quantity of air, they are built in the ordinary way using,



Fig. 1—Concrete Overcast Navajo No. 5 Mine

Where a large quantity of air is to be carried over a roadway concrete overcasts are erected. The mines are relatively free of running water and there are no droppers from the roof. For this reason the management makes its overcasts of fireproof material. Such construction also aids in preventing leakage. Note the side door by which access is afforded to the cross airway.

however, concrete instead of wood as a means of lessening the fire hazard. Where overcasts have only a small quantity of air to carry, they are constructed of a

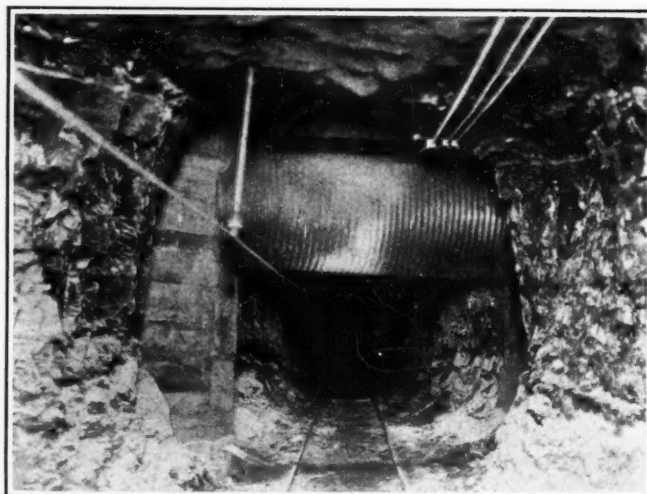


Fig. 2—Less Expensive Type of Overcast

Wherever only a single split of air has to be carried a 48-in. culvert is provided set in concrete abutments. The pipe is 12 ft. long and is made of No. 14 gage galvanized iron.

corrugated-iron culvert pipe of a diameter of as much as 48 in. set over the roadway with concrete abutments at either end. This affords a fireproof construction at reasonable cost.





## News Of the Industry



### Coal Industry Discounts Regulatory Features of Presidential Message; Success of Hard-Coal Policy Recalled

By Paul Wooton

Washington Correspondent of Coal Age

Taken at its face value the President's message commits the administration to regulation of the coal industry. The paragraph about coal does not recall any of the recommendations made by the President in his two preceding messages to the effect that the report of the Coal Commission be brought forward and acted upon.

The emphasis in this message is different. Fact-finding is not mentioned specifically but it seems to be implied by the two things which the President stresses. Those two things are made much more definite and specific than ever before. The chief executive wants a law authorizing him to appoint mediation boards apparently with power similar to those of the Railroad Mediation Board. He wants Congress to provide for emergency distribution and, by implication, for the control of prices. Apparently the granting of additional authority to the Interstate Commerce Commission would satisfy him on that point. This is very close to the major recommendation of the U. S. Coal Commission.

#### Coal Trade Complacent

There is a disposition among representatives of the coal trade, however, to discount the face value of the message. They remember the happy position of the executive during the anthracite strike. Where his predecessors had winced under the demand of consumers that something be done Mr. Coolidge had one unflinching answer. He expressed concern for their plight but explained that he had laid the matter before Congress and so long as it did not act on his request for legislation he could do nothing but assume that the

lawmakers did not want such powers exercised.

The plight of the Baldwin government in Great Britain no doubt has strengthened the President's feeling in this regard. The great prestige which the British Premier acquired from his handling of the general strike was something like that acquired by Mr. Coolidge in his handling of the Boston police strike. It presented an issue on which the majority could agree. Only one line of action was tolerable. Mr. Baldwin, however, frittered away this prestige in his subsequent handling of the coal strike. The strike was ended but in such a way as to arouse the enmity of the mine workers and the criticism of the consumers. The British experience added to that of Garfield and Palmer and Wilson and Harding makes it clear that the wages of government interference in an industrial quarrel are mistrust and criticism.

#### Recent Strike Tactics Sound

This deduction is bound to be strengthened by the marked success of the policy of non-interference during the anthracite strike. It also has been demonstrated to the satisfaction of many officials that a policy of non-intervention coupled with a campaign for the use of substitutes constitutes the best tactics in meeting a strike situation.

It is on such reasoning as the foregoing that many are led to think that the prospect is small for coal legislation at this session. The administration is not likely to press its request for coal legislation as a major objective. Its political position will be much more secure if Congress fails to act.

#### New Haven R.R. Seeks Bids On Coal Requirements

The New York, New Haven & Hartford R.R. seeks bids on a minimum of 250,000 and maximum of 280,000 net tons of high-volatile bituminous coal, to be delivered alongside its coal discharging plant at South Boston. The coal is to be delivered in substantial equal monthly quantities between Jan. 1, 1927, and April 1, 1928. Bids are to be submitted by noon Dec. 27.

#### Trade Board Post Unfilled; May Be Fight on Myers

No mention was made of the man to be selected to fill the vacancy that still exists on the Federal Trade Commission when President Coolidge transmitted to the Senate on Dec. 7 for confirmation the list of names of recess appointees. Chief Justice McCullough of Arkansas, it is said, is in the lead for this vacancy.

At the head of the President's list was the name of Abram P. Myers, of Iowa, for confirmation as a member of the Trade Commission, to which he was appointed as the successor of former Commissioner Van Fleet, who retired some time ago. Mr. Myers went to the Commission from the Department of Justice and, it is said, was sponsored by Attorney General Sargent. The nature of his duties as an official of the Department of Justice is understood to have been the basis for the opposition that likely will be raised to his appointment.

#### Dorchy Loses Last Plea; Must Go to Jail

August Dorchy, Kansas mine-union leader, is headed for jail as the result of a denial by the U. S. Supreme Court on Dec. 13 of his appeal from a ruling by the Court sustaining his conviction by the Kansas Supreme Court for violating a section of the Industrial Relations Act of that state.

Dorchy was convicted of calling an unlawful strike and was sentenced to pay a fine of \$500 and serve six months in jail. He appealed the case to the U. S. Supreme Court, which decided against him on Oct. 25. His counsel then filed a motion for a rehearing and this the Court denied on Monday.

Dorchy's case is one of several to come before the Supreme Court, all involving the constitutionality of the Kansas Industrial Court Act, some of which were decided against the state tribunal. Dorchy was vice-president of the United Mine Workers of Kansas. The charge against him was that he and Alexander Howat, then president of the organization, used their official positions in violation of the law to induce miners employed by the George K. Mackie Fuel Co. to strike. A dispute between the company and one Mishmash involving \$180 was the basis of the trouble.

**EDITOR'S NOTE**—The foregoing Washington letter reflects certain views of official Washington. Due to the fact that policy as a rule prevents government officials from permitting their views being quoted directly, the authority for these reports is necessarily somewhat vaguely referred to. The views reflected are not those of any one group of officials, but of different men, in the legislative and executive departments. There is no necessary connection between their views and COAL AGE editorial policy; neither do they necessarily represent Mr. Wooton's personal views. It is felt that the opinions thus faithfully reflected will be of great interest to the industry. Where opinions are cited from sources outside of the government, the source will be specifically stated.

### Green Says 5-Day Week Is at Hand

That the American Federation of Labor is preparing to launch a campaign for a five-day week may perhaps be inferred from an address Dec. 8 by William Green, president of the federation. Speaking before the New York Building Congress, he said:

"This great reform [the five-day week] is upon us. We will be privileged to see it quite generally established in all lines of industry within our time. Those immutable economic laws which operate to usher in the changes which bring progress and human advancement will force the acceptance of the shorter workweek in all lines of industry."

Mr. Green said it has been charged by some influential manufacturers that the shorter workweek will tend to increase the cost of manufactured articles and that such increased cost will burden the consuming public and greatly handicap American industries in foreign markets. "Labor denies this charge," he said, "and in reply asserts in most positive terms that the establishment of the shorter workweek can be brought about without adding to the cost of manufactured commodities."

### Fuel Consumption and Power Output by Utilities Higher

Public-utility power plants in the United States consumed 3,680,780 net tons of coal in October, 1926, according to a report by the U. S. Geological Survey. This compares with 3,477,709 tons used in the preceding month. Fuel-oil consumption by these plants in October totaled 914,424 barrels, against 914,324 barrels in September.

The amount of electricity produced by public-utility power plants in October again established a new record, with a total output of more than six and one-half billion kilowatt-hours. The average rate for the month was 211,600,000 kw.-hr. per day, which surpasses the September high mark.

### Indiana Mine Explosion Kills 31 and Burns Many; Fire Blocks Rescue Work

Thirty-one men are known to have lost their lives in an explosion early Dec. 9 in Francisco Mine No. 2 of the Francisco Mining Co., six miles east of Princeton, Ind. Many others who escaped from the mine were seriously burned. Sixty-nine miners were at work in the mine when the explosion occurred.

The mine shaft was badly damaged, also tippie machinery, though the shaft was not entirely blocked. Thirty-seven men were rescued during the first half-day, but many of them are so seriously burned and injured that they may die.

During the first day the rescue teams had to be changed every fifteen minutes, this being as long as they could stand the strain of gas and foul air.

Officials discount the idea that the disaster was caused by gas fumes and say it apparently was the result of a dust explosion.

Because of the condition of the mine machinery after the explosion the work of rescue workers was impeded. The injured men had to be taken to the top through the airshaft, which, though partly blocked by debris, contained openings which permitted the passage of the men. The ventilating system of the mine, apparently, was not disturbed to any great extent and after the first several hours gases were being rapidly dispelled.

Fire in the south entry of the mine, in which five men still were entombed on Thursday, drove rescue crews from the shaft. Seven men had been rescued alive from entry shortly before the fire broke out, but one of them died before he reached the hospital.

The mine was ordered sealed while it still held the bodies of five men, but only after the rescue workers were convinced that all of them were dead and that further search was useless.

The mine is one of the largest in the state. The explosion occurred in the southeastern part of the shaft shortly after five cageloads of miners had been lowered for the day's work.

Representatives of the state and federal mining inspection bureaus refused to make a statement on the cause of the explosion until further study.

### Oil from Coal a Boon To Britain, Says Mond

Great Britain will be self-supporting as regards oil through distillation from coal, which will be commercially practicable as to quantity before long, was the statement made recently by Sir Alfred Mond, distinguished chemist, at a meeting of mechanical engineers held in London.

Though the process of distillation has not been perfected yet, this is in sight, he declared. When that is done, he said, Great Britain will be able to use her surplus coal to meet the ever-increasing demand for fuel oils, and because of her large amount of coal, will be in a favored position.

The Francisco mine No. 2 is about three years old and this was its first accident. The mine is equipped with modern safety devices and apparently the explosion was not due to neglect.

### D. & H. Brief Urges Assent To B. R. & P. Lease

The Delaware & Hudson Co. has filed a brief of exceptions with the Interstate Commerce Commission to the recent recommendation of O. D. Weed, examiner for the Commission, that the application of the D. & H. to lease the Buffalo, Rochester & Pittsburgh Ry. be denied. The brief deals particularly with the examiner's contention that non-connecting properties should not be joined through a lease.

"Congress did not limit the authority of the Commission," says the brief, "to the approval of leases of connecting lines, and it follows that there is no objection to leases of non-connecting railroads as such."

"The laws of the states in which the applicant and the lessor are located (New York and Pennsylvania) distinctly recognize the right of one carrier to control another, although there is no direct connection between them."

The Commission will hear oral argument on the case in Washington on Dec. 31. Charles E. Hughes will appear as special counsel for the D. & H.

## Bituminous Coal Loaded Into Vessels at Lake Erie Ports During Season to End of November

(In Net Tons)

Ports	Railroads	1926			1925			1924		
		Cargo	Fuel	Total	Cargo	Fuel	Total	Cargo	Fuel	Total
Toledo	Hooking Valley.....	7,170,600	208,041	7,378,641	8,003,863	236,092	8,239,955	6,531,303	194,032	6,725,335
	Big Four.....	1,814,961	12,839	1,827,800	1,537,136	9,398	1,546,534	57,298	138	57,436
	N. Y. C.-Ohio Central Lines	2,118,375	108,145	2,226,520	996,891	73,774	1,070,665	135,399	5,090	140,489
	Baltimore & Ohio.....	†2,455,251	70,537	2,525,788	3,147,598	95,607	3,243,205	2,154,306	66,808	2,221,114
Sandusky	Pennsylvania.....	6,706,846	194,354	6,901,200	6,073,533	182,247	6,255,780	4,152,278	125,120	4,277,398
	Wheeling & Lake Erie.....	605,886	32,051	637,937	703,627	36,597	740,224	790,494	36,264	826,758
Lorain	Baltimore & Ohio.....	2,031,762	143,686	2,175,448	1,569,264	155,526	1,724,790	2,218,245	158,610	2,376,855
	Pennsylvania.....	520,014	174,095	694,109	387,474	170,764	558,238	1,412,762	175,782	1,588,544
Cleveland	Erie.....	.....	.....	.....	18,138	1,252	19,390	327,720	11,336	339,056
	Baltimore & Ohio.....	656,370	89,900	746,270	938,678	112,718	1,051,396	550,702	84,394	635,096
Fairport	New York Central.....	236,270	107,717	343,987	327,777	81,526	409,303	868,915	112,296	981,211
	Pennsylvania.....	986,010	74,442	1,060,452	773,291	86,234	859,525	1,183,630	78,463	1,262,093
Ashtabula	Bessemer & Lake Erie.....	*†1,848,202	258,446	2,106,648	1,101,250	212,740	1,313,990	1,502,672	196,727	1,699,399
	Pennsylvania.....	521,258	91,098	612,356	278,413	58,637	337,050	684,669	85,802	770,471
Total.....		*†27,671,805	1,565,351	29,237,156	25,856,993	1,513,112	27,370,045	22,570,393	1,330,862	23,901,255
Storage loading.....		*60,142	774	60,916	*33,017	1,048	34,065	*182,060	4,940	187,000

\* Coal loaded into vessels in December of previous year, after close of navigation, and forwarded from Lake Erie ports during year indicated.

† Storage coal included—B. & O. (Toledo), 9,763 tons; B. & L. E. (Conneaut), 5,825 tons.

Compiled by Ore & Coal Exchange, Cleveland, Ohio; H. M. Griggs, manager.



### Parker Presents Coal Bill Modified in Accordance With Coolidge Message

Representative James Parker, of New York, introduced in the House of Representatives at Washington on Dec. 9 a bill "To protect the government and the public from shortages of coal." The measure is patterned more closely upon the President's suggestions in his message to Congress than is the bill which Representative Parker framed last May, at the conclusion of the coal hearings.

Under the provisions of the new measure the Bureau of Mines is to gather statistics as to the number of mines and employees, rates of wages, time worked, tonnage produced, methods of marketing and distribution, consumption and stocks and selling prices of coal. In order to preserve or restore industrial peace in the industry the President may direct the Secretary of Labor to mediate or establish boards of mediation which will have access to all information on the subject in the executive departments.

Whenever an emergency exists through strikes or lockouts the President is to proclaim the fact and take such measures as are necessary to promote production, transportation and distribution of coal, appoint a federal fuel distributor, provide for car service priorities, and prevent the charging of high prices.

Conspicuous by its absence from the new bill is the fact-finding provision of the "several mineral and manufactured fuels," which include both oil and gas, natural and manufactured.

The bill has been referred to the House Interstate and Foreign Commerce Committee, of which the New York legislator is chairman.

An informal poll of the House Committee is now being taken by the chairman, and a close associate of his stated that the chairman was confident the committee would report out his measure. This associate said that the chairman was counting on the absence from the meeting of the committee when the

### Urge Distribution Data To Curb Waste

Some day American business will be conducted on a basis of national figures gathered by the government and other agencies, was the prediction made Dec. 8 at a meeting of the committee on collection of business figures of the United States Chamber of Commerce. The committee has a plan which calls for the collection and publication of figures of distribution, rather than those of production, which fail to give a complete picture of industry.

A statement by Herbert Hoover, Secretary of Commerce, was read to the committee. It said in part:

"We are almost wholly lacking in the basic data as to distribution. We know our production in most important lines of industry and we know a great deal about stocks in the hands of producers. But we know very little as to stocks in the hands of consumers. If we had a census of distribution, I am convinced that this information would automatically eliminate a great amount of waste in the whole distribution machinery."

vote is taken of a sufficient number of Congressmen who previously opposed the measure to insure its success.

It looks as if there would be a vote in the committee before the holiday recess.

Senator Copeland (New York) is assiduously campaigning among Senators to win support for his measure, which is on the Senate calendar. He made his first move Dec. 10, when he asked and obtained unanimous consent to have read into the record the portion of the President's message dealing with bituminous coal. From now on he can be expected to make almost daily attempt to obtain unanimous consent for consideration of his bill in the Senate.

### Wage Cuts Likely Soon In Pittsburgh District; No General Action Yet

Sporadic reports of mine wage reductions are heard in the Pittsburgh district, but the first-class companies have taken no action as yet toward a general cut. The trade, however, is fully committed to the belief that a downward revision is at hand, particularly in the Connellsville and Westmoreland non-union fields, and best authorities are inclined to believe this cut will come after the fifteenth of the month, although it may be deferred until end of December.

Mines in the Pittsburgh district proper are curtailing operations by working fewer days per week. Some of the mines that were working six days per week just two weeks ago are down to three-day-a-week basis, with prospects of falling off further.

The pending developments naturally raise the question of what the Pittsburgh Coal Co. is going to do. This company elevated its wages to a point 5c. above the Jacksonville scale after endeavoring for more than a year to establish the 1917 rate in its mines.

According to reports in the trade, a high official of the Pittsburgh Coal Co. has stated that the company should keep its present scale in force until April 1. This cannot be confirmed, however.

Coal operators in Pittsburgh are advised that wages in Group No. 1 (Bessemer district) were reduced to the 1917 scale as of Dec. 1.

### Georges Creek Men Still Out

The miners employed by the Georges Creek Coal Mining Co.'s Jackson mine, near Lonaconing, voted not to return to work at a reduced scale, which caused their strike a week ago. It is said the scale offered called for 89c. per ton for pick mining and \$5 per day for labor.



Aerial Tramway  
Dehue Mine  
Youngstown  
Sheet & Tube Co.



Refuse from the tippie of the Dehue (W. Va.) operation is now spoiled by a wire-rope aerial tram. Upper left shows the bucket-loading station of steel construction which has been added to the tippie. From a bin adjacent to the shaft the refuse is conveyed to the two-compartment bin, from which it is loaded into the respective buckets. Center—Empty bucket



entering loading station. The trigger sticking up from the right-hand end of the trolley is set or cocked automatically as the loaded bucket passes through the last tower on the way to the dumping point. When the travel is reversed the swinging endgate is tripped open by a mechanism driven from the trolley wheels. Right—As the operator sees a returning bucket,

### October Freight Record Made by Railroads

Railroads of the United States handled a larger volume of freight in October than in any other month on record, according to a report by the Bureau of Railway Economics. The October total was 48,273,089,000 net ton miles, which exceeded by 3,944,912,000 net ton miles the best previous record, established in September. This heavy movement was handled with comparatively little transportation difficulty.

In the Eastern district there was an increase of 15 per cent in the freight handled in October compared with one year ago, in the Western district a 5.5 per cent increase, and in the Southern district a gain of 2.1 per cent.

Record traffic was recorded also for the first ten months of this year. The increase was 4.9 per cent over the previous high mark, in the first ten months of 1923. The volume was also an increase of 7.3 per cent over the corresponding period of 1925 and 13.6 per cent over that of 1924.

For the ten months the railroads in the Eastern district showed an increase of 9 per cent over the same period last year; in the Southern district the increase was 7.1 per cent, and in the Western district it was 5.1 per cent.

### Wages Revised Downward In Freeport Field

Miners employed at mines along the West Virginia Northern Ry. in Preston County are reported to have accepted a wage reduction which became effective on Dec. 10. It became necessary to adjust wages, operators say, because of lower prices now being offered for their product. At the time prices advanced rapidly late in October, operators voluntarily advanced the wage to the day men and the rate per ton to the miners, with the understanding that in the event of a decline in the market price, it would probably be necessary to make a corresponding reduction in the miners' rate. The higher rate was 75c. a ton for room loading and 85c. per ton for heading work. The new rate represents a reduction of 10c. per ton in each instance. The downward adjustment affects all the mines operating along the West Virginia Northern with possibly one exception.

Smaller operators in many instances are in a quandary as to just what to do about adjusting wages again, inasmuch as some of the larger companies, protected by contracts, have declined at this time to reduce wages to their former level. A number of the smaller mines, having no contracts through which the higher scale can be absorbed, find it impossible to operate profitably at the present market price and hence have had to shut down their mines. Any reduction as a rule that they might make would simply result in the loss of miners.

### U. S. Coal Dumping Charge Sifted in Alberta

Alberta coal operators and government officials went thoroughly into the Winnipeg market situation at a conference at Edmonton, Dec. 11, when charges of illegal dumping of United States coal on the Manitoba market were discussed from all angles. It was alleged by some operators at the conference that American coal has been contracted for in Winnipeg at the rate of \$7.60 a ton delivered, which is less than the actual transportation and handling charges after loading at the mine. Alberta coal cannot be successfully sold in Winnipeg under present conditions for less than \$8.50 to \$9 a ton, it is asserted.

The conference resolved to carry on an exhaustive investigation of the dumping situation in Winnipeg under the direction of G. R. Pratt, for the last ten years fuel engineer for Alberta in Winnipeg. It is probable that the demonstration services being carried on for the Alberta Government by Mr. Pratt will be discontinued next year, and his efforts confined to a direct campaign to enlarge the Manitoba market for Alberta coal.

Following a conference with Dr. H. M. Tory and Professors Pitcher and Stanfield, it was decided to work in closer harmony with the scientific research council of the university. Two coal operators will be appointed members of the council, and one member of the research bureau will be a member of the provincial coal council.

### Indiana Union Organizers Canvass Open Shop Miners

Following failure to unionize Vanderburgh County (Indiana) coal mines by parleying with operators, union workers in the Evansville district now are working with the miners individually, and hope to have every miner in the union in a few weeks. This plan was outlined by William Stinson, District No. 11 board member, at a meeting of a group of miners at Weber's Hall early last week.

Stinson told of the parleys that union officials had with James Moore, manager of the non-union Crescent and Sunnyside mines, near Evansville, but without results. R. J. Paseo and Ora Gabaway, sent to southern Indiana by John L. Lewis, president of the United Mine Workers, are working with Stinson in the unionizing campaign.

Munnell Wilson, who has been doing unionization work in western Kentucky, told the miners that all western Kentucky would be unionized by Christmas.

### Coal Company Capital Leads Mining Industries

The fair value of the capital stock of all mining corporations making returns in 1924 was \$7,483,691,440, the Bureau of Internal Revenue shows in statistics just made public. The subdivisions making up that total are: Coal, \$1,852,751,471; metal mining, \$1,331,783,527; oil and gas, \$2,889,830,113; non-metal mining, \$86,790,753; quarrying, \$204,634,738; other mining, \$1,617,900,838.

### "Use Canada Coal" Scheme Gets Flying Start

"Canadian Coal for Canadians" and "Use Canadian Coal" promise to be the two best known business slogans in Canada from now on.

Edmonton board of trade men as well as all the service and other clubs, Alberta Cabinet ministers, and business and professional men have united to give a real send-off to this new movement, which is designed to rouse in every Canadian a desire to burn coal produced in his country in preference to the imported article.

E. J. Garland, farmer M. P. for Bow River, officially launched the campaign with a speech in which he declared that Canadians were tired of seeing \$100,000,000 go across the border annually for United States coal.

The federal government, it is reported, will allow all letters to be cancelled by a stamp bearing the "Use Canadian Coal" slogan. Every business man is pledged to insert in his out-going mail a little slip with the injunction to "Buy Canadian Coal and Develop Canadian Industries."

Alberta branch offices of Eastern houses are urging their head offices to co-operate in putting over the slogans to their customers. Radio, too, is to play a prominent part in the campaign, and plans are afoot to obtain the active aid of every club and organization throughout Canada.

Howard Stutchbury, provincial Trade Commissioner for Alberta, is secretary of the campaign committee.

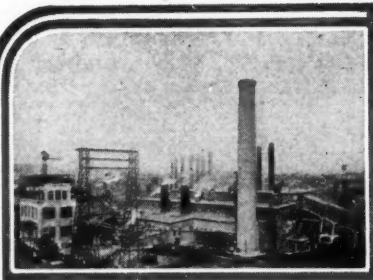
### Mine Union Holds Election Of Officers This Week

International officials of the United Mine Workers face plenty of competition in the union election this week. John L. Lewis, of Springfield, Ill., the president, is opposed by John Brophy, of Clearfield, Pa., now president of District 2 (central Pennsylvania). Vice-President Philip Murray, of Pittsburgh, Pa., must beat William Stevenson, Bay City, Mich.


Thomas Kennedy, of Hazleton, Pa., has two opponents in his race for re-election as international secretary-treasurer, to which position he was appointed when William Green was elevated to the presidency of the American Federation of Labor. His opponents are William J. Brennan, of Scranton, Pa., and Charles R. Harris, of Herrin, Ill.

The Consolidation Coal Co. has declared a dividend of \$1.75 in payment of accumulations on the preferred stock, payable Jan. 10 to stock of record Dec. 20. This pays the dividend due on Dec. 1, 1925, and leaves four quarterly dividends in arrears.





## News Items From Field and Trade



### ALABAMA

**More Properties for Deepwater.**—Advices from Gadsden state that the Deepwater Coal & Iron Corporation is acquiring extensive mineral holdings in Etowah, Marshall and DeKalb counties. The offices of the Deepwater corporation are in Jasper, and it has several coal mines in operation in Walker County, where a large acreage of coal lands was acquired several years ago.

**Brookside-Pratt Co. Expands.**—The Brookside-Pratt Mining Co. recently installed picking tables at its Warrior River mine in Walker County. The new opening made several months ago is now producing 900 tons per day. Mining machines are used in cutting the coal and all equipment is electrically driven. The company has begun construction on fifty new houses for its employees. The Brookside-Pratt company also has acquired the valuable coal properties of the New River Coal Co., near Winfield, Marion County, and will build a new washery, install picking tables and other modern equipment to bring about a larger and better prepared production at Turner mine, now in operation. The Black Creek seam of coal is being mined and a large acreage of virgin coal is said to be embraced in the holdings taken over.

The Parrish Coal Co., of Parrish, recently sustained a fire loss on one of its buildings amounting to \$75,000.

### COLORADO

**Production Mounting.**—Output by Colorado coal mines in October was 1,057,974 tons, according to the monthly report of James Dalrymple, state coal mine inspector. This compares with a total of 941,101 tons produced in the preceding month. Production during the first ten months of this year was 8,002,093 tons, an increase of 87,208 tons over the total for the corresponding period of last year.

### ILLINOIS

**Tax Fraud Charge Dismissed.**—The action of the District Court for Northern Illinois in dismissing indictments against James W. McElvain and Frank Crozier on charges of conspiracy to defraud the United States in internal revenue because barred by the statute of limitations was affirmed by the U. S. Supreme Court Dec. 6 in a decision rendered by Justice Butler. The defendants were accused of conspiring to have filed a false income and profits tax return for 1920 for the Freeman Coal Mining Co. They pleaded that

no act was charged later than March 14, 1921, more than three years before the indictment was returned, and hence that the charge was barred by the statute of limitations. The lower court upheld them and the government appealed, claiming the case came within the proviso of the statute of limitations making six years the period of time within which a charge might be filed. The Supreme Court held that the charge did not come within the six-year proviso and that the indictment properly had been dismissed by the District Court.

The Mining Examining Board of Illinois will meet at Springfield Jan. 10 to examine candidates for certificates as mine managers, first and second class; hoisting engineers, mine examiners and electrical hoisting engineers. The board is composed of A. D. Lewis, director; M. S. Coleman, operator; James Needham, operator; Francis M. Devlin, miner, and S. E. Rose, miner.

On Dec. 9, when the State Mine Examining Board met in Harrisburg, 119 men were examined and given the required state mining certificates. Many others were rejected.



Wolfpit, Ky., as Viewed from the Mountainside

This is the mining town of the McKinney Steel Co., on Marrowbone Creek in the Big Sandy field of eastern Kentucky. The photograph was taken from the dump of the mine in the Upper Elkhorn seam. The large square building in the center is the commissary and that at the right, with many windows, is the office.

### INDIANA

**Indiana Miners Returning.**—Proof that coal miners are returning to the Terre Haute field is seen in the large number of miners who have besieged the Vigo County mine examining board during its December session. The number of certificates of qualification and permits issued in the session outnumbered those issued in the entire year in 1925 and was more than 70 per cent of those issued in 1924.

The Gladstone coal mine, located three miles east of Petersburg, operated by Klinck, Mitchell and Bach, of Linton, has been sold to the DeLuxe Coal & Coal Co., of Terre Haute, and the new owners have assumed control of the property. The mine has a capacity of between 400 and 500 tons daily and gives employment to about 100 miners. Charles W. Kirk will continue as superintendent of the mine.

Organization of the Big Vein Coal Co., to develop a coal mine at Buckskin, in Gibson County, has been effected, with Victor C. Kendall of Indianapolis as secretary and treasurer. Edward E. Stout, Clarence Stanley and Samuel Ashby, also of Indianapolis, are other incorporators. The company has a capital of 22,500 shares of no par value and \$300,000 preferred stock.

### KANSAS

**Quality Company Petitions.**—A voluntary petition in bankruptcy has been filed by the Quality Coal Co., which operated Central No. 49, one of the district's large mines. Liabilities include \$3,100 in wages owed. Two hundred miners struck some time ago in an effort to force payment of back wages.

### KENTUCKY

**Norton Strike Ends.**—Officials of the Norton Coal Mining Co., Nortonville, announced Dec. 9 that the strike begun by miners several days previously had ended. The men, who went out in sympathy with some twenty-five men who were discharged because they had joined the United Mine Workers, returned to work voluntarily, the company officials announced. The company employs almost 400 men in its two mines and it was said that the force was almost normal late last week.

**River Coal Traffic Livelier.**—Movement of coal into Louisville by water has picked up materially this season, due in part to a good boating stage most of the year. On Dec. 6 the towboat Fleischman came in with ten barges of coal, and was followed by the Ingersoll with eight.

## NEW YORK

**Rubel Not to Sell.**—I. Howard Lehman of Cook, Nathan & Lehman, attorneys for the Rubel Coal & Ice Corp., Brooklyn, said Dec. 9 that he had been authorized by Samuel Rubel, president of the corporation to say that the corporation had made no agreement to sell any of its coal properties. The company owns or controls thirty-five ice plants, thirty-six coal yards and pockets and more than 100 coal and ice stations. The announcement was made, it was explained, because items had appeared in the public press announcing a contemplated sale of the coal properties of the company.

## OHIO

W. L. Wilshire, president of the West Virginia Coal & Coke Co., announced last week that the accounting, purchasing and sales departments of the

ton, was named by Governor Pinchot. Friends of Walsh say there is scant hope of his hanging on under the Fisher régime.

**Names Anthracite Inspectors.**—Governor Pinchot has filled the seven vacancies long existing among the anthracite mine inspectors of the state. The appointees are: Charles G. Fromme, Williamstown; William J. Clements, Coaldale; James Quigley, Mt. Carmel; John L. Picton, Plymouth; William R. Bottomley, Williamstown; Timothy A. Ryan, Hazleton, and Bert Golden, Shamokin. Seventy-one applicants were examined by the anthracite mine inspectors' examining board.

**Jermyn Urges Coal Survey.**—On the heels of the court's decision denying the City of Scranton the right to increase the valuation of a foot-acre of coal for taxation purposes from \$400 to \$800, Mayor E. B. Jermyn has asked the City Council for an appropriation

Glen Alden will have paid \$10 a share this year. In 1924 and 1925 \$7 was paid, and in 1923, \$4.50. Another increase in the dividend is expected in 1927.

**Two Mining Secretaries?**—At the coming session of the state Legislature it is possible that a move will be launched to have two secretaries of mining named for Pennsylvania instead of one, as provided for in the present law. Under the new scheme there would be one secretary for the soft-coal field and one for the anthracite belt. Representatives of the bituminous field are said to believe that there should be a state secretary who is familiar with conditions in that portion of the mining industry in Pennsylvania as well as one for the hard-coal region. It is held that different conditions exist in each part of the industry.

**Blast Due to Carelessness.**—Failure of the mine bosses and other officials to take proper precautions to guard the safety of workers and the possibility that some of the men might have been smoking were reasons advanced by mine inspectors for the recent explosion at the No. 7 mine of the Susquehanna Collieries Co. which cost nine lives. One inspector, Edward Curtis, said the blast was due to gas. The findings of the experts have been sent to the chief of the state mining bureau, Joseph Walsh, at Harrisburg.



Airplane View of Clear Fork Mine, Fonde, Ky.

This mine, operated by the Clear Fork Coal Co., has a daily capacity of approximately 1,400 tons. Although in Kentucky, it might more properly be classed as a Tennessee mine, for it is on a 21-mile branch line through Tennessee from Jellico. A road is now being graded over the distant mountain which will make Fonde accessible by automobile from Middlesboro, Ky.

company would be moved from Fairmount, W. Va., to Cincinnati. Since the organization of this corporation the headquarters of these departments have been maintained in Fairmont, though Mr. Wilshire has put in most of the time in the Cincinnati office. It is understood that the sales department will be enlarged and augmented. Additional floor space has been added to the present quarters of the company in the Atlas National Bank Building.

## PENNSYLVANIA

**Soft-Coal Man to Succeed Walsh?**—Reports from the Republican camp in western Pennsylvania indicate that the new chief of the state mining bureau will be a soft-coal man. The political dope has it that bituminous mining interests think there have been too many hard-coal men serving as Secretary of Mines and that under Governor-elect Fisher the western section of the state should receive recognition. The present secretary of mines, Joseph Walsh, Pitts-

ton, to cover the cost of a general survey of all coal lands in the city. The Mayor declares the assessed coal at the present time is about one-third short of the actual quantity beneath the city and that the survey would tend to increase the amount of coal for taxable purposes by about 15,520 acres. During the last year there were 46,560.69 foot-acres on the assessment books. The cost of a survey would be about \$10,000, Mayor Jermyn told the councilmen.

**Glen Alden Thrives.**—The Glen Alden Coal Co. has announced a quarterly dividend of \$2.50 payable Dec. 20 on stock of record Dec. 10. The collieries of the company are currently producing over 40,000 tons of anthracite a day, or at the rate of 1,000,000 tons a month. This is 3,000 tons above the record autumn production average of 1921. Because of the two-month shutdown early this year it is doubtful if tonnage will reach the 1923 record of 12,000,000 tons, but large production and satisfactory profits are assured. With the \$2.50 dividend payable December 20,

Pond Creek Pocahontas Co. produced 67,185 tons in November, compared with 59,365 tons in October and 57,436 tons in September.

## CANADA

**Coke Output at Record Level.**—Production of coke in Canada during October reached a new high level at 173,592 tons, which exceeded by 4 per cent the previous high record of 166,292 tons produced in September. Comparative figures showed 165,665 tons made in August of this year and 161,414 tons in October, 1925, says the report of the Dominion Bureau of Statistics. During the month 89,723 tons of Canadian coal and 172,894 tons of imported coal, a total of 262,617 tons, were coked. Imports of coke in October totaled 173,592 tons, and 5,322 tons were exported. For the first ten months of this year the total disposition of coke was 1,589,567 tons, as compared with 1,173,633 tons in the corresponding period of 1925.



## Among the Coal Men

**William Hines**, an international representative of the United Mine Workers, has gone from Pittsburgh to Fairmont, W. Va., to assist in union activities in the latter field.

**George Adams**, Matherville, Ill., has been named superintendent of the Black Diamond Coal Co., which is now operating two mines, one a shaft and the other a drift.

**A. B. Crichton**, well known mining engineer of Jamestown, Pa., and president of the Johnstown Coal & Coke Co., recently went under an operation at the Memorial Hospital in that city. His recovery has been steady and he expects to be able to go home soon.

The State Department of Labor and Industry of Pennsylvania has appointed **Oscar M. Cope**, of Greensburg, as a mine inspector. This position is not that of state mine inspector under the Department of Mines.

**I. D. Cooke**, who has been connected with the Red Jacket Coal Co., of Columbus, Ohio, for the last ten years, has been made acting sales manager to fill the vacancy caused by the death of H. T. Wilson. Mr. Cooke held the title of cashier for the past few years.

**Dr. W. J. Egan** of Sydney, N. S., has been appointed a commissioner by the provincial government, under the Inquiries Act, to investigate certain complaints made by the miners to the Minister of Mines regarding the administration of the Workmen's Compensation Act.

**Stacey C. Sharp**, formerly engaged in the jobbing business in Columbus with the Big Mountain Coal Co. and later in the billboard advertising business at Nelsonville, has re-entered the coal business, having accepted a position in the sales department of the General Hocking Coal Co.

**R. A. Shelby**, Uniontown, a member of the Public Service Commission of Pennsylvania, is being prominently mentioned for a place on the Interstate Commerce Commission. The term of Commissioner Cox, New Jersey, expires this month. **Cyrus Woods**, Greensburg, former Ambassador to Russia, also is being mentioned. The latter is understood to enjoy the favor of Senator David Reed, Pittsburgh.

**James Cooley**, of Moberly, Mo., traveling auditor for district 25, United Mine Workers, is a candidate for district president to succeed **Arch Helm**, who announces he will not be a candidate. **George Hepple**, of Moberly, who has been secretary of the district for 15 years, also states he will not be a candidate to succeed himself. **A. G. Llewellyn**, board member, is a candidate for re-election. More than half a dozen miners in the district, which comprises practically all of Missouri and part of Kansas, have announced their candidacy for president.

**R. P. Gilham**, vice-president of the Campbell's Creek Coal Co., having its main office in Cincinnati and mines in Kanawha County, West Virginia, will be acting president of the company until the next directors' meeting in February. At that time a successor will be elected to fill the place of the late Col. E. O. Dana, who was head of the company for the last twelve years.

## Obituary

**Frank Day Tuttle** of 1,120 Fifth Avenue, New York City, president of the Tuttle-Burger Coal Co., died Dec. 9, of pneumonia at the age of 62. He is survived by his wife, Florence Guertin Tuttle, and two sons. Funeral services were held at 2:30 Sunday afternoon in Holy Trinity Church, Brooklyn. Mr. Tuttle was a trustee of the Brooklyn Savings Bank, and of the Brooklyn Trust Co., chairman of the board of the Commonwealth Fuel Co. and director of the National Electric Ry. He was graduated from Yale in 1887 and was a member of the University and Hamilton clubs, Sons of the Revolution and Society of Colonial Wars. Mrs. Tuttle is well known as an author of short stories. She is vice-chairman of the League of Nations non-Partisan Association and was a delegate to the Fourth Assembly of the League of Nations at Geneva in 1923.

**John Fahy**, 59, for a number of years a prominent leader in the activities of the miners' union in the anthracite at one time president of District No. 9, in a hospital at Columbus, Ohio, following a lingering illness. Mr. Fahy was at one time president of District No. 9, of the United Mine Workers, with headquarters at Shamokin. He was one of the confidential lieutenants of the late John Mitchell during the latter's service as international president of the miners' union and participated in the memorable strike of 1900 and 1902.

**M. B. Marshall**, 50 years old, a mine inspector living in West Frankfort, Ill., was killed instantly in an automobile accident ten miles south of Mount Vernon, Ill., the night of Dec. 9. The automobile crashed into a truck and flying glass from the windshield of his car severed his jugular vein.

## Traffic News

### Order for Through Rates West On Virginian Upheld

An order by the Interstate Commerce Commission directing the Virginian Ry. to establish through rates with the Chesapeake & Ohio on coal shipments to the west was upheld by the U. S. Supreme Court Dec. 13 in an opinion delivered by Justice Brandeis.

In 1922 a number of mine operators

in the West Virginia field on the Virginian Ry. filed a complaint against the Virginian Ry. and the Chesapeake & Ohio alleging that they were denied access to the market in the Middle West because there were no through rates to Western destinations and that the combination rate was prohibitive. Of the 99 mines then served by the Virginian, 45 enjoyed the same rates to the west as mines located on the Chesapeake & Ohio and the Norfolk & Western because of a trackage right arrangement between the C. & O. and the Virginian, made by the latter to expedite its business eastward to tide-water. It was the 54 not included in this trackage agreement that complained. Voluminous testimony was taken by the Commission and an order was issued directing through rates to the west so as to place all mines on the Virginian on a competitive basis in the Western market.

The Virginian Ry. resisted the order in the federal District Court for West Virginia and sought an injunction on the ground that the finding of the Commission was not supported by the evidence. The District Court denied an injunction and dismissed the bill, but on the representation of the Virginian Ry. that it would be done irreparable injury if the order were made effective pending appeal to the Supreme Court, the decree of the lower court held up operation of the order until the high court should decide the case.

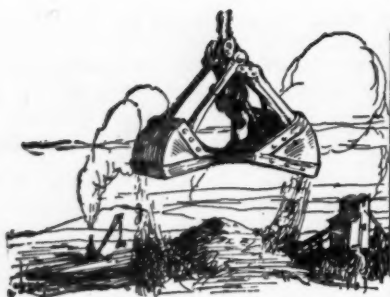
The decision of the Supreme Court held that whether a rate is unjustly discriminatory is a question on which the finding of the Commission, supported by substantial evidence, is conclusive unless there was some irregularity in the proceedings or some error in the application of the rules of law. It asserts that it is apparent that the Commission decided this case after ample investigation. The Court affirmed the decision of the lower court in refusing an injunction and went further to assert that suspension of the order pending appeal was unwarranted.

### Southern Illinois-Missouri Rate Advance Suspended

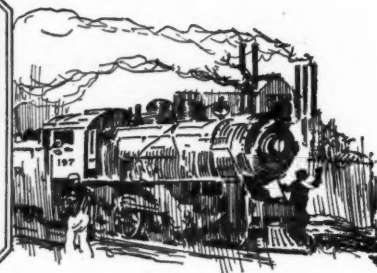
By an order entered Dec. 9 in Investigation and Suspension Docket No. 2807, the Interstate Commerce Commission suspended from Dec. 10, 1926, until April 9, 1927, the operation of certain schedules as published in the Cleveland, Cincinnati, Chicago & St. Louis Ry.'s tariffs I.C.C. No. 8340, and Supplement No. 34 to I.C.C. No. 8196.

The suspended schedules propose to increase the rates on bituminous coal and coal briquets from mines on the Cleveland, Cincinnati, Chicago & St. Louis Ry. in southern Illinois to stations in Missouri on the St. Louis-San Francisco Ry. south of St. Louis, Mo., to and including Ste. Genevieve, Mo., from \$1.40 to \$1.71 per ton.

The Island Creek Coal Co. has filed a complaint with the Interstate Commerce Commission against the Chesapeake & Ohio Ry. attacking the rate of \$3.02 per net ton on coke from Ashland, Ky., to Holden, W. Va. The complainant urges that a rate of \$1.51 would be just and reasonable.



## Production And the Market



### Consumer Indifference and Seasonal Trends Promote Softness in Coal Market

Greater softness characterized the trend of the bituminous coal markets of the United States last week. Record production, much of it mined to apply on orders which were canceled before the coal was shipped; the closing of the lake business and the end of new commitments overseas have all reacted to depress spot quotations still further and to abate the feverish buying preceding the collapse of the British strike. The nearness of the holiday season, with the slowing up of general industry common to this period, also is an element of weakness in the present situation.

In the Northwest demand still continues upon an unusually active basis, but elsewhere in the country the general report is one of growing consumer indifference to the importunities of the shipper to buy coal. While the rate of actual consumption undoubtedly has been heavy during the past few months, it is equally certain that many consumers also have added substantially to the amount of coal in storage. It seems probable that the gain during November was several million tons, as compared with the estimated increase of 1,264,000 net tons in October reported by the National Association of Purchasing Agents.

#### Spot Average Declines 14c.

Southern Illinois and the Fourth Vein Indiana mines alone were able to withstand the buyers' steady attacks upon price structure. The resistance still

possible, however, is none too strong—particularly on the steam side of the market. Tidewater markets were very uneven; in a few instances quotations on low-volatile pools increased slightly, but reductions were more common; high-volatile prices broke sharply. West Virginia, Pennsylvania and Kentucky quotations were weaker all along the line. There were further declines in Ohio. Fifth Vein Indiana, central Illinois and Standard district coals also faltered.

Coal Age Index of spot bituminous prices on Dec. 13 was 214 and the corresponding weighted average price was \$2.59. The figures on Dec. 6 were 226 and \$2.73, respectively. Current averages are on approximately the same basis as those prevailing in mid-October. Compared with the peak of the market the first week in November, Monday's averages represent declines of 85 points and \$1.02. In view of the existing market conditions, further declines before the end of the present calendar year are not at all unlikely.

#### Another Record Established

Bituminous mines of the country produced a record output during the week ended Dec. 4, when the total went to 14,728,000 net tons, according to the preliminary estimates of the U. S. Bureau of Mines. No small share of this total was due to the month-end rush of operations to get all the coal possible on wheels before another wave of cancellations caught them. Output last

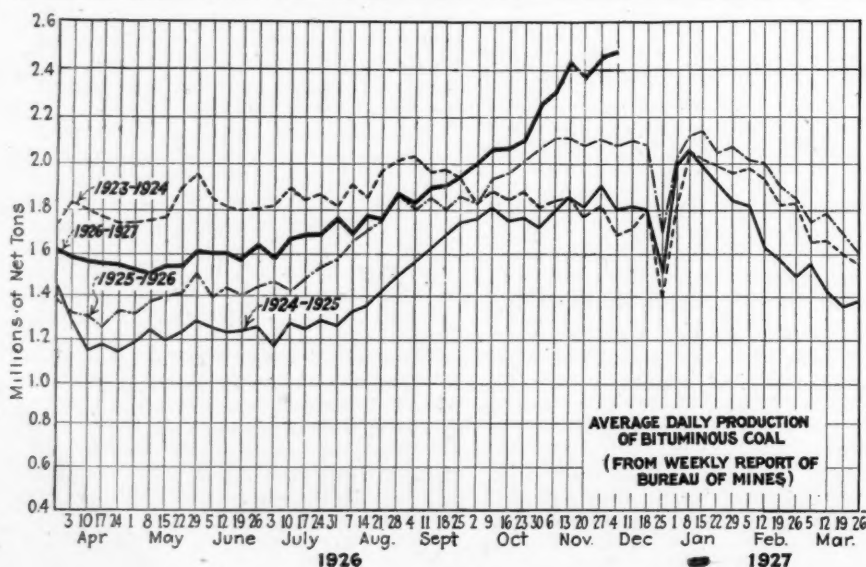
week was on a somewhat smaller scale. Loadings on Dec. 6 and 7 were approximately 3,000 cars less than during the corresponding period the preceding week. Totals, however, continue high.

Despite complaint in some quarters that the recent gains have been unfairly distributed, analysis of output by states shows most of the major producing districts turning out more tonnage than for the corresponding weeks in 1923. Cumulative output to Dec. 4 was 530,232,000 net tons, as compared with 526,084,000 tons in 1923 and 521,592,000 tons in 1920. Included in the 1926 total is 29,547,215 tons shipped to the lakes. Dumpings the week ended Dec. 12 were 69,707 tons of cargo and 3,473 tons of vessel fuel.

#### Anthracite Position Improved

The hard-coal market registered some improvement with the turn of the month. Output the week ended Dec. 4 climbed to 1,997,000 net tons. This was the highest total recorded since the week ended Oct. 23. Cumulative output was 78,774,000 net tons, as compared with 61,537,000 tons for the corresponding period last year. Last week also saw a firmer tone to the independent market at New York. The Philadelphia market, however, lacked the snap which might be expected with winter weather. Three cargoes, totaling 20,700 tons, closed lake shipments from Buffalo.

There has been no recovery in interest or in prices in the Connellsville bee-



#### Estimates of Production

(Net Tons)

##### BITUMINOUS

	1925	1926
Nov. 20.....	12,596,000	14,282,000
Nov. 27 (a).....	11,599,000	13,413,000
Dec. 4 (b).....	12,868,000	14,728,000
Daily average.....	2,145,000	2,455,000
Cal. yr. to date.....	478,653,000	530,232,000
Daily av. to date (c).....	1,678,000	1,857,000

##### ANTHRACITE

Nov. 20.....	46,000	1,760,000
Nov. 27.....	36,000	1,638,000
Dec. 4.....	63,000	1,997,000
Cal. yr. to date (c).....	61,537,000	78,774,000

##### BEEHIVE COKE

Nov. 20.....	284,000	205,000
Nov. 27.....	292,000	198,000
Dec. 4.....	298,000	191,000
Cal. yr. to date (c).....	9,655,000	10,835,000

(a) Revised since last report. (b) Subject to revision. (c) Adjusted to equalize number of days in the two years.



hive coke market. When November wage increases are taken into consideration, the present level of spot prices show no increase over the depressed basis ruling last summer.

### Midwestern Market Sags

Good coal-burning weather was unequal to the task of maintaining prices and interest in the Middle West last week. Leaders in southern Illinois and the Fourth Vein Indiana district held their quotations by closing down mines and refusing to ship "no bills" to an indifferent market. Other operators, however, offered coal at 25 to 50c. under recent quotations. Even these concessions failed to attract any great amount of new business. The suggestion that it would be prudent to enlarge steam coal reserves before April 1 falls upon deaf ears.

Eastern producers are trying to put coal into the Chicago market via the cut-price route. High-volatile West Virginia and eastern Kentucky block is

available at \$3@\$3.50 and egg at \$2.50 @\$3. Low-volatile mine-run is easy at \$2.75@\$3 and prepared sizes can be bought at \$3.75@\$4.25 for shipment. Bargain-hunters are able to pick up odd lots of distress coal shipped to the Chicago market on open billing at lower figures. There is a fair demand for both anthracite and coke.

Conditions in Chicago and at St. Louis, where demand is still more inactive, are reflected in the mining fields of Illinois and Indiana. Coal is backing up on the operators and, for the time being, the struggle is for the survival of the cheapest. Southern Illinois mines are averaging three and four days a week; where that time is exceeded, railroad tonnage is responsible. Many railroads favor the stripping operations with current orders. The only material difference between the situation in southern Illinois proper and in the Jackson-Duquoin area is that prices in the last-named section are slipping more rapidly.

### Mt. Olive Demand Hit

Railroad orders are the salvation of the Mt. Olive district at the present time as ordinary commercial demand has receded faster than the producers had anticipated. There is little change in the Standard district. All Belleville mines are carrying "no bills" and there is little prospect of early relief from this condition. In the St. Louis local market price now seems to be the controlling factor and even some of the best grades are sacrificed to effect prompt disposition of track coal. Country steam trade is more active than domestic, but the storage movement is backward.

Recession in prices and demand is still the order of the day in Kentucky. The decline in spot quotations on western Kentucky coal is making competition in Middle Western states particularly bitter. In the eastern part of the field about the only check left on prices is the wage advance which was made

## Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern		Market Quoted	Dec. 14, 1925	Nov. 29, 1925	Dec. 6, 1926	Dec. 13, 1926†
Smokeless lump.....	Columbus....	\$4.25	\$4.85	\$4.75	\$3.50@4.50	
Smokeless mine run.....	Columbus....	2.85	3.25	3.50	3.00@3.25	
Smokeless screenings.....	Columbus....	2.60	2.35	2.35	2.25@2.75	
Smokeless lump.....	Chicago....	3.60	4.75	4.50	3.50@4.25	
Smokeless mine run.....	Chicago....	2.35	3.75	3.05	2.75@3.25	
Smokeless lump.....	Cincinnati....	4.25	5.10	4.85	4.25@5.00	
Smokeless mine run.....	Cincinnati....	2.35	3.75	3.50	3.00@3.50	
Smokeless screenings.....	Cincinnati....	1.85	3.25	3.10	2.75@3.00	
*Smokeless mine run.....	Boston....	5.00	7.00	7.00	5.75@6.25	
Clearfield mine run.....	Boston....	1.90	2.75	2.75	2.40@2.90	
Cambria mine run.....	Boston....	2.20	3.35	3.25	2.70@3.25	
Somerset mine run.....	Boston....	2.05	3.00	3.00	2.50@3.10	
Pool 1 (Navy Standard).....	New York....	2.95	4.00	3.85	3.75@4.00	
Pool 1 (Navy Standard).....	Philadelphia....	2.95	3.50	3.45	3.45@3.65	
Pool 1 (Navy Standard).....	Baltimore....	2.20	3.75	3.75	3.00@3.50	
Pool 9 (Super. Low Vol.).....	New York....	2.30	3.00	2.85	2.75@3.00	
Pool 9 (Super. Low Vol.).....	Philadelphia....	2.30	3.25	3.15	3.00@3.25	
Pool 9 (Super. Low Vol.).....	Baltimore....	2.00	3.10	3.35	2.75@3.00	
Pool 10 (H.Gr.Low Vol.).....	New York....	2.05	2.60	2.55	2.45@2.75	
Pool 10 (H.Gr.Low Vol.).....	Philadelphia....	2.05	3.00	2.85	2.90@3.00	
Pool 10 (H.Gr.Low Vol.).....	Baltimore....	1.90	2.60	2.65	2.35@2.65	
Pool 11 (Low Vol.).....	New York....	1.75	2.40	2.40	2.35@2.50	
Pool 11 (Low Vol.).....	Philadelphia....	1.90	2.75	2.60	2.60@2.75	
Pool 11 (Low Vol.).....	Baltimore....	1.65	2.35	2.40	2.10@2.25	
High-Volatile, Eastern		Market Quoted	Dec. 14, 1925	Nov. 29, 1925	Dec. 6, 1926	Dec. 13, 1926†
Pool 54-64 (Gas and St.).....	New York....	1.60	2.25	2.25	1.75@2.25	
Pool 54-64 (Gas and St.).....	Philadelphia....	1.60	2.40	2.45	2.15@2.25	
Pool 54-64 (Gas and St.).....	Baltimore....	1.65	2.85	2.85	1.90@2.00	
Pittsburgh ac'd gas.....	Pittsburgh....	2.85	3.00	2.70	2.60@2.75	
Pittsburgh gas mine run.....	Pittsburgh....	2.35	2.55	2.30	2.25@2.35	
Pittsburgh mine run (St.).....	Pittsburgh....	2.05	2.40	2.20	2.00@2.25	
Pittsburgh slack (Gas).....	Pittsburgh....	1.55	2.05	1.95	1.90@2.00	
Kanawha lump.....	Columbus....	2.60	3.85	3.25	3.00@3.50	
Kanawha mine run.....	Columbus....	1.70	2.50	2.10	2.00@2.25	
Kanawha screenings.....	Columbus....	1.20	1.85	1.60	1.50@1.75	
W. Va. lump.....	Cincinnati....	2.75	4.10	3.35	2.50@2.75	
W. Va. gas mine run.....	Cincinnati....	1.55	2.60	2.60	2.25@2.75	
W. Va. steam mine run.....	Cincinnati....	1.50	2.60	2.25	2.00@2.50	
W. Va. screenings.....	Cincinnati....	1.10	2.10	1.80	1.50@2.00	
Hooking lump.....	Columbus....	2.60	3.35	3.25	2.75@3.25	
Hooking mine run.....	Columbus....	1.80	2.25	2.10	1.90@2.25	
Hooking screenings.....	Columbus....	1.25	1.85	1.85	1.65@1.75	
Pitts. No. 8 lump.....	Cleveland....	2.35	3.10	2.85	2.15@3.25	
Pitts. No. 8 mine run.....	Cleveland....	1.85	2.30	2.00	1.95@2.10	
Pitts. No. 8 screenings.....	Cleveland....	1.45	1.90	1.60	1.50@1.60	
Midwest		Market Quoted	Dec. 14, 1925	Nov. 29, 1925	Dec. 6, 1926	Dec. 13, 1926†
Franklin, Ill. lump.....	Chicago....	\$3.50	\$4.00	\$4.00	\$4.00	\$4.00
Franklin, Ill. mine run.....	Chicago....	2.50	2.85	2.85	2.75@3.00	
Franklin, Ill. screenings.....	Chicago....	1.85	1.85	1.75	1.50@2.00	
Central, Ill. lump.....	Chicago....	3.00	3.50	3.50	3.00@3.50	
Central, Ill. mine run.....	Chicago....	2.30	2.60	2.60	2.00@2.25	
Central, Ill. screenings.....	Chicago....	1.40	1.60	1.50	1.40@1.65	
Ind. 4th Vein lump.....	Chicago....	3.10	4.00	4.00	4.00	4.00
Ind. 4th Vein mine run.....	Chicago....	2.35	2.60	2.60	2.50@2.75	
Ind. 4th Vein screenings.....	Chicago....	1.85	1.85	1.85	1.75@2.00	
Ind. 5th Vein lump.....	Chicago....	2.50	3.50	3.35	2.75@3.25	
Ind. 5th Vein mine run.....	Chicago....	1.95	2.35	2.35	2.10@2.35	
Ind. 5th Vein screenings.....	Chicago....	1.40	1.60	1.50	1.35@1.50	
Mt. Olive lump.....	St. Louis....	2.85	3.10	3.10	2.75@3.00	
Mt. Olive mine run.....	St. Louis....	2.00	2.60	2.75	2.50	2.50
Mt. Olive screenings.....	St. Louis....	1.75	1.60	1.60	1.50	1.50
Standard lump.....	St. Louis....	2.40	2.85	2.85	2.25@2.50	
Standard mine run.....	St. Louis....	1.80	1.85	1.85	1.75@2.00	
Standard screenings.....	St. Louis....	.85	1.25	1.05	1.00@1.15	
West Ky. block.....	Louisville....	2.10	3.50	3.10	2.75@3.25	
West Ky. mine run.....	Louisville....	1.35	1.60	1.60	1.25@2.00	
West Ky. screenings.....	Louisville....	.95	1.30	1.15	.90@1.40	
West Ky. block.....	Chicago....	2.05	3.50	3.10	2.50@3.00	
West Ky. mine run.....	Chicago....	1.25	1.85	1.85	1.75@2.00	
South and Southwest		Market Quoted	Dec. 14, 1925	Nov. 29, 1925	Dec. 6, 1926	Dec. 13, 1926†
Big Seam lump.....	Birmingham....	2.75	2.85	2.85	2.75@3.00	
Big Seam mine run.....	Birmingham....	2.10	2.10	2.10	2.00@2.25	
Big Seam (washed).....	Birmingham....	2.30	2.35	2.25	2.00@2.50	
S. E. Ky. block.....	Chicago....	3.25	4.10	3.50	3.00@3.50	
S. E. Ky. mine run.....	Chicago....	2.15	2.60	2.50	2.50@2.75	
S. E. Ky. block.....	Louisville....	3.25	4.35	3.60	3.00@3.50	
S. E. Ky. mine run.....	Louisville....	1.60	2.40	2.25	1.75@2.50	
S. E. Ky. screenings.....	Louisville....	1.25	2.10	1.75	1.50@2.00	
S. E. Ky. block.....	Cincinnati....	2.85	4.10	3.50	3.00@4.00	
S. E. Ky. mine run.....	Cincinnati....	1.60	2.35	2.25	2.00@2.50	
S. E. Ky. screenings.....	Cincinnati....	1.10	2.10	1.70	1.40@1.90	
Kansas lump.....	Kansas City....	5.00	4.60	4.60	4.50@4.70	
Kansas mine run.....	Kansas City....	3.10	3.00	3.00	3.00	3.00
Kansas screenings.....	Kansas City....	2.30	2.35	2.30	2.25@2.35	

\* Gross tons, f.o.b. vessel, Hampton Roads

† Advances over previous week shown in heavy type; declines in italics

## Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

		Market Quoted	Freight Rates	December 14, 1925		December 6, 1926		December 13, 1926†	
				Independent	Company	Independent	Company	Independent	Company
Broken.....	New York....	\$2.34				\$8.50@9.25		\$8.50@9.25	
Broken.....	Philadelphia....	2.39				\$9.25		\$8.50@9.15	
Egg.....	New York....	2.34				8.25@9.00		8.75@9.25	
Egg.....	Philadelphia....	2.39				9.00@9.50		9.00@9.50	
Egg.....	Chicago....	5.06		\$9.50@11.00	\$8.03@8.25	8.26		8.26	
Stove.....	New York....	2.34				9.50@9.85		9.25@10.00	
Stove.....	Philadelphia....	2.39				9.75@10.20		9.75@10.20	
Stove.....	Chicago....	5.06		10.00@11.00	8.48@8.80	8.71		8.71	
Chestnut.....	New York....	2.34				9.25@9.50		9.25@9.75	
Chestnut.....	Philadelphia....	2.39				9.25@10.00		9.25@10.00	
Chestnut.....	Chicago....	5.06		10.00@11.00	8.50@8.75	8.48		8.48	
Pea.....	New York....	2.22				6.00@6.50		6.00@6.50	
Pea.....	Philadelphia....	2.14				6.30@6.75		6.30@6.75	
Pea.....	Chicago....	4.79		5.50@6.00	5.50@6.00	6.03		6.03	
Buckwheat No. 1.....	New York....	2.22				2.25@2.60		2.25@2.60	
Buckwheat No. 1.....	Philadelphia....	2.14				2.40@2.75		2.40@2.75	
Rice.....	New York....	2.22				1.60@2.00		1.65@2.10	
Rice.....	Philadelphia....	2.14				1.90@2.00		1.90@2.00	
Barley.....	New York....	2.22				1.25@1.50		1.35@1.50	
Barley.....	Philadelphia....	2.14				1.75		1.75	
Birdseye.....	New York....	2.22				1.40@1.60		1.40@1.60	

\* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type; declines in italics.

‡ Quotations withdrawn because of strike which started Sept. 1, 1925.

early last month. High-grade gas block has been offered at \$3@3.15 and good slack can be purchased as low as \$1.50, with mine-run \$1.75@2.50. Western Kentucky block ranges from \$2.75 to \$3.25, with screenings 90c.@1.40.

The market at the Head of the Lakes continues to be one of record proportions. Shipments from the docks last month were 35,531 cars, as compared with 30,993 cars in October and 27,411 cars in November, 1925. The November record was made in 1919 when 41,722 cars were shipped. Industrial inquiry is heavy and there has been no falling off in retail demand. Docks are pursuing the policy of avoiding commitments which might place them in the position of overselling on certain grades.

#### Anthracite Boom On

Anthracite demand has taken a spurt with the growing shortage in dock supplies of semi-bituminous. Judging from the present flow of retail orders, there will be no substantial carry-over of hard-coal supplies into next season. Receipts since the opening of navigation have approximated 1,200,000 tons. Quotations are firm at \$13.20 for egg, \$13.60 for stove, \$13.45 for nut, \$11.05 for pea and \$7 for buckwheat. A minimum of \$9.50 is asked for prepared Pocahontas and \$6.50 for mine-run.

Trade at the Twin Cities is steady, with a continuance of activity buying forecast for the next six weeks. Prices have been well maintained on all steam grades and on prepared sizes of Illinois and Indiana coals. Close purchasers, however, are looking to all-rail movement to beat dock quotations. The last cargo of the season has been unloaded at Milwaukee. Demand is easier, but prices are firm.

The Southwestern and Intermountain markets show no improvement. Heavy accumulations of "no bills" are reported from all Southwestern districts. Retail stocks are too large to induce further buying for storage and current demand is light. "No bills" plague Colorado operators, who see business sharply curtailed by unseasonably warm weather. The mercury also is responsible for slow movement from Utah mines. Slack has dropped to \$1.25, but quotations on other sizes are unchanged.

#### In Throes of Readjustment

Cincinnati is in the throes of readjustment. Lake business has passed into history. Congestion between the mines and the seaboard has taken all zest out of the tidewater market. Accumulation of loads sent westward on open billing is not adding to the happiness of unwise shippers. Purchasing agents are working the "overproduction" argument to the limit in their drive on prices and quotations continue to recede.

Under such circumstances unusual quotations readily become established bases for trading. For example, the \$1.40 figure named by one Kentucky company to move slack has become the accepted minimum of the market, although other producers of comparable coal are getting \$1.60@1.90. One group of West Virginia operators is seeking lump business at \$2.50@3,

while one of the largest factors in Logan County is holding to \$3.50 @3.75.

In the smokeless market a number of shippers are endeavoring to hold to their December circulars of \$5 on lump and egg and \$3.50 on mine-run. At the same time many New River operators are accepting lump business at \$4.50 and booking some orders at \$4.25. Some mine-run has sold down to \$3. On slack, \$2.75 seems to be the minimum which will be recognized by the majority of the producers and most of the fine coal is going at \$3.

#### Sharp Drop in Coal Movement

Last week witnessed a sharp drop in the coal loads moving through the Cincinnati gateway. The total number of cars interchanged was 13,021, a decrease of 1,622 when compared with the preceding week and a decrease of 422 when compared with the corresponding period last year. The heaviest loss was on the Chesapeake & Ohio, where loadings decreased 1,334 cars. The movement of empties to the mines was 15,541 cars, an increase of 1,326 cars over the total for the preceding week.

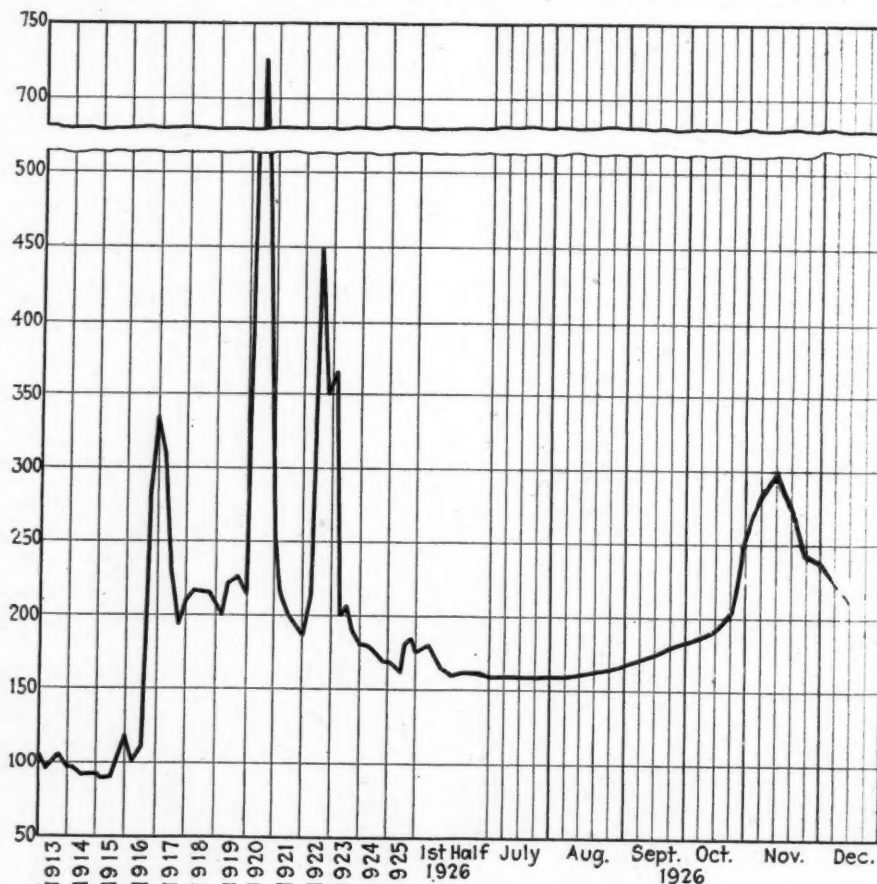
The Columbus market is marking time. The high rate of production, however, has thrown considerable distress coal upon the market and this tonnage has been moving at substantial concessions. Forward buying has been

reduced to a minimum as both retailers and industrial consumers are looking for lower prices. Production in the southern Ohio field is estimated at 60 per cent of capacity. Most of the curtailment in recent weeks has come from the smaller mines which started up when buying was at its height.

Northern Ohio suffers from buying inertia which has further weakened the price situation. Aside from some storage movement by certain large consumers who are taking no chances on winter transportation, inquiry for steam coal is at a low ebb. The retail market, too, is quiet. During the week ended Dec. 4 the No. 8 field produced approximately 374,000 tons, or 54 per cent of potential capacity. This was an increase of 52,000 tons over the preceding five-day week and 35,000 tons greater than a year ago.

#### Pittsburgh Marking Time

There have been some minor readjustments in prices in the Pittsburgh district since the first of the month, but it is felt that present levels represent the deadline on the basis of prevailing wage rates. Curtailed production is helping to check further declines in spot quotations. Competition from Fairmont steam coal at \$1.90 for mine-run and from Lower Connellsville at \$1.60 is keenly felt by Pittsburgh operators who are trying to get \$2@2.25

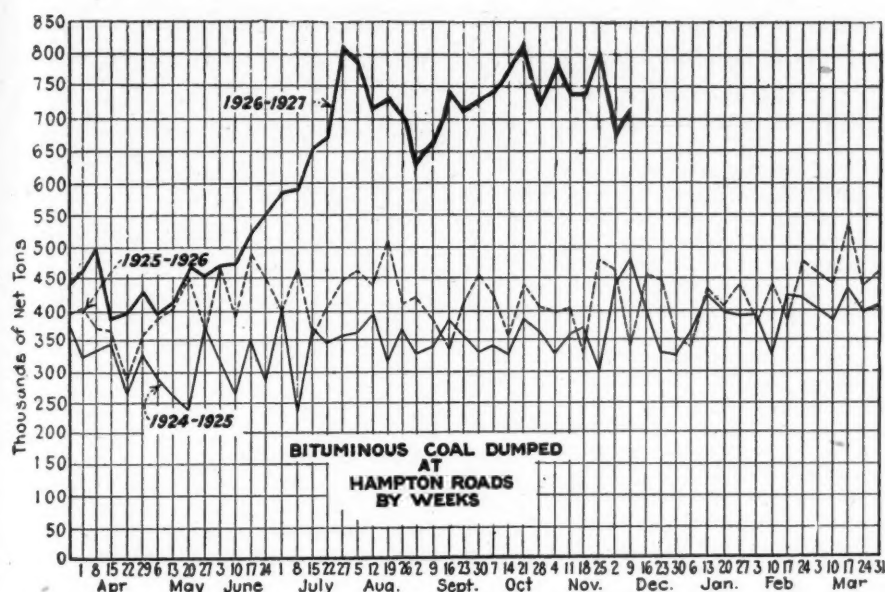


Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	Dec. 13	Dec. 6	Nov. 29	Nov. 22	1925	1924
Index .....	214	236	239	243	182	169
Weighted average price.....	\$2.59	\$2.72	\$2.89	\$2.94	\$2.20	\$2.04

This diagram shows the relative, not the actual, price on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportion each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke: 1913-1918," published by the Geological Survey and the War Industries Board.





and by the Bessemer district, which is asking \$2@\$.10. Talk of wage reductions continues, but no definite action of importance has been taken.

Central Pennsylvania is now feeling the full force of the cessation of the export demand created by the British strike. Pool 1 is quoted at \$3.50@\$.375; pool 71, \$3.25@\$.335; pool 9, \$2.80@\$.310; pool 10, \$2.50@\$.265; pool 11, \$2.35@\$.240; pool 18, \$2.20@\$.230. Loadings during the week ended Dec. 4 totaled 21,798 cars. Unless cold weather intervenes, central Pennsylvania prices probably will work to still lower levels.

Bituminous trade is sagging at Buffalo, although declines in spot quotations have not lived up to the pessimistic predictions common to that market. Optimists are living in hope that a stocking movement will start after the first of the year. Fairmont lump remains \$2.25@\$.250 and slack, \$1.60@\$.175, but mine-run has dropped to \$1.75@\$.20. Youghiogheny prices are unchanged. Pittsburgh and No. 8 steam lump has declined to \$2.25@\$.250—a loss of 25c.; slack has fallen to \$1.60@\$.180, as compared with \$1.70@\$.185 a fortnight ago. Allegheny Valley mine-run is \$2.25@\$.250.

#### New England Prices Lower

In New England the settling down process still continues. Mild weather following extreme cold has helped depress the spot market, although poor business, especially in textiles, also is a factor. Many are now forecasting a \$5 basis on Navy Standard at Hampton Roads before the end of January. Current quotations at the Southern loading piers are \$5.75@\$.625. There is a fair volume moving coastwise on contracts.

For inland delivery \$7.75@\$.80 is asked on cars at Boston and Providence. At retail Boston dealers are quoting around \$10.50. Demand for all-rail central Pennsylvania coals is only fair and prices are receding. Medium grade low-volatile coal can be bought at \$2.50 per net ton, f.o.b. mines, and pool 1 can be purchased at \$3@\$.325.

There is considerable quiet buying at New York. Most of the distress tonnage has been cleaned up and the line

trade is in fair condition. The choicer grades of coal are practically out of the spot market, but odd lots of cheaper coals can be picked up under current market quotations. Some cancellations of export orders have been received. Operators expect little activity until after the first of the year.

#### Philadelphia Demand Easier

The Philadelphia market is slowly settling. Consumers, for the most part, have pared their buying orders to the bone, confident that prices must work to lower levels because of the cessation of extraordinary export demand. These buyers, however, ignore the fact that wage increases Nov. 1 added approximately 60c. per ton to the cost of coal. Efforts to reduce wages to the 1917 basis have not been very successful. Railroads are said to be in need of coal, but they are avoiding the open market, seeking instead to pick up odd lots of distress tonnage from hard-pressed shippers.

Demand for both steam and gas coals in the Baltimore domestic market is only moderate. There is keen competition for business and current prices reflect the struggle for orders. On the export side, heavy shipments the first few days of the month encourage the belief that there will be no material slackening off in overseas business for several weeks. It is not likely, however, that December shipments will

come up to the November mark of 1,182,090 gross tons of cargo coal.

The best that can be said of the Birmingham situation is that there has been little change. For the time being supply and demand seem to be in fair balance. Buyers are trying to keep supplies just slightly ahead of current requirements; there is no real storage movement under way. Due to milder weather there has been a slight lull in domestic sales, but there is no surplus of high grade coals pressing on the market. Coke is easier, but prices are unchanged.

#### Better Outlook in Anthracite

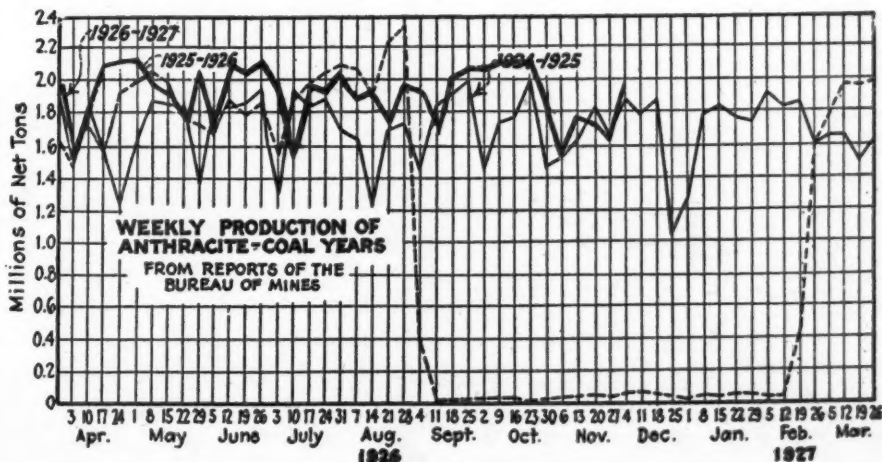
Anthracite has improved its position slightly in the New York market the past week. There is, however, no excessive demand and some of the smaller independents are having hard sledding. On the other hand, weather boosted buying to such an extent that independent quotations on domestic sizes were stronger than at the beginning of the month. Steam coals, too, are in a somewhat better position, with some small producers temporarily sold up on rice and barley.

With real winter weather at Philadelphia last week, trade observers anticipate a stronger market in that city. Company shippers are moving their larger sizes without difficulty, but complain that there is no urgency in the orders. Some of the independents, however, have coal on tracks at the mines. Pea and egg are the laggards in the domestic trade. The steam situation is quiet, with No. 1 buckwheat weaker than it was a week ago.

Colder weather put life into the Baltimore anthracite market and brought a rush of small orders to the retail dealers. The mercury also came to the assistance of the Buffalo trade. Lake trade closed last week with the dispatch of three cargoes totaling 20,700 net tons. Of this quantity 9,000 tons were cleared for Superior and 11,700 tons for Milwaukee. The movement for the season was 2,115,300 tons, as compared with 1,400,532 tons last year when the season was cut short by the strike.

#### No Life to Connellsville Coke

Further declines in prices have failed to revive buying interest in the Connellsville coke market. Heating coke is offered at \$3@\$.350; standard furnace, \$3.50@\$.375 and good foundry coke,



### Coal Loadings and Supply

	Cars Loaded	
	All Cars	Coal Cars
Week ended Nov. 27, 1926..	942,792	227,936
Week ended Nov. 20, 1926..	1,078,812	242,013
Week ended Nov. 28, 1925..	923,213	172,279
Week ended Nov. 21, 1925..	1,057,674	189,182

	Surplus Cars		Car Shortages	
	All Cars	Coal Cars	All Cars	Coal Cars
Nov. 30, 1926..	144,921	12,521	.....	No report
Nov. 23, 1926..	115,734	8,722	.....	No report
Nov. 30, 1925..	136,796	43,658	.....	.....

\$4.75@5.25, with some less desirable fuel at \$4.50. Producers still wrestle with the wage problem. Some reductions were made on the fringe of the region, but cuts in the district proper led to strikes. On the whole, operators are reluctant to take action restoring wages to pre-November levels.

Beehive output in the Connellsville and Lower Connellsville region during the week ended Dec. 4 was 138,650 tons, according to the Connellsville *Courier*. This was the lowest weekly total since the middle of September. Furnace-oven production was 65,500 tons, a decrease of 4,200 tons when compared with the preceding week. Merchant-oven output was 73,150 tons, a decrease of 3,710 tons.

The prolongation of the British strike assured record Belgian coal production of probably 25,000,000 tons for the year. Production in 1925 was 23,133,000 tons. Development of the mines in the new Campine field should ultimately free Belgium from the necessity of importing industrial coal.

### Says Gasoline Substitute From Coal Is Distant

Development of a practical substitute for gasoline as fuel for automotive engines is still far off, according to a statement by Albert E. Miller, technician of the Sinclair Refining Co., at a meeting of the American Petroleum Institute at Tulsa, Okla., Dec. 8. Extraction of oil from coal still is in the experimental state and seems impracticable, he said, in discussing the work of several European scientists who claim to have discovered suitable substitutes for gasoline as motor-car fuel.

"Efficient low-temperature coal distillation processes will yield around sixteen gallons of oils per ton of coal and distilled from this very little motor fuel can be obtained," Mr. Miller declared. "These processes will arouse no more than scientific interest in the United States for some time to come."

In discussing extensive experiments by German scientists to extract oil from coal, Mr. Miller declared that recovery of oils by means of solvents, by controlled oxidation or by direct hydrogenation, has never been worked out successfully. The yield of gasoline from these processes averages about 10 per cent, he said, which is too low to interest American oil men.

### Reparation Deliveries Increase

German deliveries of coal on reparations account to France, Italy and Belgium during the first eight months of 1926 totaled 7,056,000 metric tons and deliveries of coke during that period amounted to 2,056,000 tons, as compared with 5,156,000 tons of coal and 2,413,000 tons of coke in the corresponding period of 1925. France received 5,048,000 tons of coal and coke in the eight months period of 1926, as compared with 4,821,000 tons in the 1925 period; Italy received 2,124,000 metric tons of coal as compared with 1,087,000 tons in the comparative period in 1925 and Belgium received 1,940,000 metric tons as against 1,661,000 tons in the first eight months of 1925.

Germany made small reparations deliveries of coal in 1919, but no important quantities were delivered until 1920, when they totaled nearly 14,000,000 tons. The amounts or prices allowed Germany against reparations deliveries have been in accordance with paragraph 61 Annex V, Part VIII of the Treaty of Versailles, and are based on the pithead price in Germany except when the British f.o.b. price is lower.

**New Output Record Likely.**—A new record for output is almost certain to be established this year by Kentucky coal mines. In the first ten months of this year eastern Kentucky produced 39,588,000 tons and western Kentucky, 12,245,000 tons, which would indicate a probable total of about 60,000,000 tons for the year with a fair demand this month.

## Coal Produced in Illinois in 1925\*

(Exclusive of Product of Wagon Mines)

County	Loaded at Mines for Shipment	Net Tons			Total Quantity	Value		Number of Employees				Average Number of Days Worked	Average Tons per Man per Day
		Sold to Local Trade and Used by Employees	Used at Mines for Steam and Heat	Total		Total	Average per Ton	Miners and Loaders†	Underground Haulage and Track	All Others	Surface		
Bond, Clinton and Marion Bureau	1,422,226	95,308	69,678	1,587,212	\$3,098,000	\$1.95	1,194	201	210	193	1,798	158	5.57
Cass, Hancock McDonough, Schuyler, Scott and Warren	354,930	35,613	16,530	407,073	1,242,000	3.05	833	66	110	84	1,093	170	2.19
Christian	3,965,665	163,361	42,838	4,171,864	9,016,000	2.16	2,533	329	354	258	3,474	191	6.28
Edgar Logan and Macon	121,419	7,700	323,698	1,031,000	3.19	736	94	66	71	967	114	2.93	
Franklin	13,859,590	98,577	125,147	14,083,314	32,545,000	2.31	9,458	1,854	1,700	1,389	14,401	178	5.49
Fulton	1,831,143	80,967	6,957	1,919,067	4,104,000	2.18	1,422	188	195	282	2,087	173	5.31
Gallatin, Jefferson, Wabash and White	474,264	18,845	14,928	508,037	1,003,000	1.97	458	94	131	105	788	184	3.51
Greene	2,300	2,300	.....	2,300	7,000	3.04	6	1	1	2	10	100	2.30
Grundy and Will.	405,373	20,283	8,164	433,820	1,121,000	2.58	499	74	96	62	731	149	3.99
Henry	115,268	37,577	1,669	154,514	385,000	2.49	203	19	13	20	255	175	3.47
Jackson	1,462,588	27,010	11,082	1,500,680	2,990,000	1.99	713	96	252	216	1,277	181	6.48
Knox	1,095	17,529	1,760	20,384	54,990	2.65	44	3	14	14	75	134	2.02
La Salle	345,729	324,708	10,629	681,066	2,247,000	3.30	875	77	89	106	1,147	218	2.73
Livingston	27,241	1,640	28,881	106,000	3.67	50	6	15	14	85	126	2.71	
McLean and Woodford	63,209	35,877	10,850	109,936	416,000	3.78	266	27	19	28	340	141	2.29
Macoupin	5,791,836	62,842	118,544	5,973,222	11,739,000	1.97	3,301	670	715	344	5,030	190	6.25
Madison	3,056,616	204,639	74,089	3,335,344	6,785,000	2.03	2,700	489	397	310	3,896	138	6.20
Marshall	3,840	11,151	1,361	16,352	49,000	3.00	65	7	3	9	84	79	2.45
Menard	1,750	49,689	1,920	53,359	155,000	2.90	64	10	5	17	96	158	3.51
Mercer	56,737	18,089	786	75,612	204,000	2.70	147	17	10	18	192	103	3.83
Montgomery	1,976,789	26,841	30,113	2,033,743	4,132,000	2.03	1,951	312	409	225	2,897	123	5.71
Peoria	772,638	146,896	7,596	927,130	2,168,000	2.34	1,079	187	125	139	1,530	152	3.98
Perry	2,079,184	92,065	42,968	2,214,217	4,929,000	2.23	1,454	268	170	297	2,189	154	6.56
Randolph	813,157	31,419	20,044	864,620	1,635,000	1.89	944	153	122	111	1,330	122	5.34
Rock Island	23,139	1,091	24,230	73,000	3.01	41	7	4	8	60	108	3.75	
St. Clair	2,552,334	400,101	70,071	3,022,506	5,635,000	1.86	3,269	509	407	416	4,601	115	5.72
Saline	4,121,923	58,181	76,407	4,256,511	9,410,000	2.21	3,749	726	602	578	5,655	151	4.97
Sanjamon	5,496,174	324,036	79,488	5,899,698	12,823,000	2.17	6,034	766	730	493	8,023	161	4.56
Shelby	48,185	17,178	5,585	70,948	167,000	2.35	117	19	13	17	166	131	3.27
Stark	5,621	5,621	.....	5,621	15,000	2.67	12	2	2	2	18	174	1.79
Tazewell	350,647	97,232	2,418	450,297	1,159,000	2.57	377	47	53	40	517	171	5.10
Vermilion	3,091,480	304,444	22,541	3,418,465	7,566,000	2.21	2,231	261	515	574	3,581	173	5.53
Washington	8,534	21,150	1,845	31,529	78,000	2.47	101	11	11	16	139	134	1.69
Williamson	8,068,099	83,277	139,874	8,291,250	18,287,000	2.21	6,286	940	1,004	1,016	9,246	158	5.68
	62,712,422	3,170,520	1,026,417	66,909,359	\$146,492,000	\$2.19	53,242	8,534	8,568	7,479	77,823	161	5.33

\*The figures relate only to active mines of commercial size that produced coal in 1925. The number of such mines in Illinois was 466 in 1925; 448 in 1924; and 575 in 1923.

Methods in mining in 1925: The tonnage undercut by hand was 9,572,518; shot off the solid, 12,161,107; cut by machines, 48,572,292; mined by stripping, 3,398,159; not specified, 205,283.

Size classes of commercial mines in 1925: There were 48 mines in Class A-1

(500,000 tons and over), producing 59.8 per cent of the tonnage; 48 in Class 1-B (200,000 to 500,000 tons), with 22.6 per cent; 45 in Class 2 (100,000 to 200,000 tons), with 9.9 per cent; 33 in Class 3 (50,000 to 100,000 tons), with 3.8 per cent; 73 in Class 4 (10,000 to 50,000 tons), with 2.8 per cent, and 219 in Class 5 (less than 10,000 tons), producing 1.1 per cent.

†Includes shotfitters.

Compiled by U. S. Bureau of Mines.



## Foreign Market And Export News

### Restrictions on Coal Exports Modified in Great Britain

All coal export restrictions, except those on shipments of anthracite and coke, were removed by Great Britain, effective Dec. 9.

An increasing number of ships are being loaded for export, accompanied by a heavy decline in arrivals of foreign coal and many cancellations are reported as domestic supplies are made available. Best admiralty coal is quoted at 32 to 35 s. a ton (\$7.68 to \$8.40.)

It is estimated in England that nearly 800,000 miners are working with a probable increase by the end of the year to 900,000 or approximately the full number the industry can absorb for some time. Domestic consumption is improving slowly as prices are lowered and industrial activity is heavier, but normal consumption is not expected locally until after the holidays.

Temporary difficulty in coal car supplies due to abnormal conditions is expected by the British coal trade to adjust itself on the resumption of the normal flow of trade.

### Resume Canadian Shipments

Export of anthracite coal from Great Britain to Canada, which was discontinued during the strike, is being resumed. The first permit since the strike ended has been granted by the British government for this purpose and a cargo of anthracite is now being loaded aboard the steamer Blairdeven at Glasgow, Scotland.

The coal is consigned to the Canadian Industrial Coal Co., Ltd., of Montreal, and is due to arrive at St. John, N. B., during Christmas week. It is expected that this coal will be placed on the Montreal market early next month.

### Would Forestall Shortage

Paris, France, Nov. 18.—Both France and Belgium are awaiting eagerly the end of the British strike and in the meantime are considering what measures may be taken to prevent shut-downs of essential industries and public service and a minimum of dislocation in trade movements. Developments in these directions are complicated by continuing advances in wages, coal prices and transportation rates.

In the Nord and Pas-de-Calais basin wages have been increased from 0.80 fr. to juvenile workers up to 2.40 fr. to adult coal cutters. Advances ranging from 1.20 to 2.00 fr. on the maximum rates in the Loire also have been granted. These increases will mean a boost of 5 to 15 fr. in coal prices. The latest schedules show increases of 6.40 to 15.40 fr. on flaming coals, 7.40 to 10.40 on bituminous, 7.40 to 8.40 on semi-bituminous and 10.40 to 15.00 fr. on sized domestic coals.

During October France imported

1,075,935 metric tons of coal, 444,451 tons of coke and 91,569 tons of patent fuel. Exports the same month were 334,050 tons of coal, 31,672 tons of coke and 27,266 tons of patent fuel. No exports can now be made without government permit. The O. H. S. received 234,800 tons of coal and 120,000 tons of coke from the Ruhr last month.

### Expand Dutch Coke Facilities

Not only are the Dutch State mining authorities devoting considerable attention to the development of the coal resources of the country but they are also rapidly increasing coke-production facilities at the collieries. One battery of 120 Hinselmann ovens and one of 126 Otto ovens have been in operation for some time and a new battery of 63 ovens is approaching completion at the Emma colliery. At the Maurice mine, at which coal hoisting operations recently were started, Evence Coppee et Fils, of Brussels, have recently completed a coal-screening plant with a capacity of 920 tons per hour and a coal washer capable of handling 300 tons per hour. The Coppee Co. also has obtained a contract to construct a battery of 132 coke ovens at the Maurice Colliery with an option on 132 more ovens at a later date.

### Exports Again Decline

Exports of bituminous coal from five leading Atlantic ports of the United States during the week ended December 6, as compared with the two preceding weeks were as follows, according to information furnished to the Minerals Division, Department of Commerce by the U. S. Customs Service:

Port	Week Ended Nov. 20	Week Ended Nov. 27	Week Ended Dec. 6
	Gross Tons	Gross Tons	Gross Tons
New York...	14,255	.....	9,899
Philadelphia	170,564	124,058	114,389
Baltimore...	329,183	252,507	267,653
Norfolk.....	315,740	341,260	257,177
Charleston..	24,046	14,116	31,234
Total.....	853,766	731,941	660,352

### Export Clearances, Week Ended Dec. 9

FROM HAMPTON ROADS		
For United Kingdom:		Tons
Swed. Str. Williams.....	2,505	
Nor. Str. Samnanger.....	6,573	
Span. Str. Oran.....	5,948	
Br. Str. Highland Star.....	4,760	
Br. Str. Memnon.....	6,339	
Br. Str. Benreach.....	8,000	
Br. Str. Penhale.....	5,924	
Br. Str. Ilvington Court.....	7,165	
Br. Str. Corby Castle.....	8,063	
Ital. Msp. Tergeste.....	7,315	
Br. Str. Vestalia.....	7,970	
Br. Str. Elswick House.....	5,686	
Br. Str. Fotinia.....	7,242	
Span. Str. Armuru.....	3,913	
For Brazil:		
Br. Str. Mistley Hall, for Rio de Janeiro.....	6,178	
For Argentina:		
Br. Str. Tudor Star, for Buenos Aires.....	6,799	
Br. Str. Doveston, for Buenos Aires.....	5,179	
For France:		
Fr. Str. P. L. M. 17, for Rouen.....	5,222	
For West Africa:		
Ital. Str. Della Terza, for Dakar.....	8,671	

For Portugal:  
Port. Str. Cubanga, for Lisbon..... 7,009  
For England:  
Br. Str. Norfolk, for Immingham.... 12,730  
For Ecuador:  
Peru. Str. Amazonas, for Guayaquil.. 468

### FROM BALTIMORE

For England (for Queenstown for orders, unless otherwise specified):  
Br. Str. Westmoor..... 7,416  
Jap. Str. Chile Maru..... 7,131  
Br. Str. Cornish City..... 6,780  
Span. Str. Elanchove, for Beckton... 3,950  
Belg. Str. Menapien..... 6,920  
Ital. Str. Masaniello..... 6,542  
Br. Str. Cilurnum..... 4,431  
Br. Str. Stagpool..... 6,453  
Span. Str. Galdames..... 4,025  
Span. Str. Ol Monticello..... 4,638  
Br. Str. Esperia..... 5,362  
Grk. Str. Tsiropinas..... 6,156  
Br. Str. Langlofore..... 7,031  
Br. Str. City of Salisbury..... 8,216  
Br. Str. Mombassa..... 6,379  
Br. Str. Llantwit Major..... 2,862  
Br. Str. Lornaston..... 7,301  
Du. Str. Ellerswoutsdyke, for Lands End..... 5,504  
For Ireland:  
Br. Str. Hunstanworth, for Valentia for orders..... 3,375  
Br. Str. Ixia, for Belfast..... 4,247  
Br. Str. Chenab, for Dublin..... 4,224  
Br. Str. Palm Branch, for Dublin... 5,015  
Nor. Str. Osterdal, for Dublin..... 5,503  
Nor. Str. Bauta, for Belfast..... 2,322  
Br. Str. Ellerdale, for Cork..... 5,102  
For Italy:  
Ital. Str. Lerici, for Genoa..... 5,744  
Ital. Str. Delmazie, for Naples..... 9,041  
Ital. Str. Glano, for Genoa..... 9,467  
Ital. Str. Labor, for Civitavecchia... 5,391  
Ital. Str. Casmono, for Genoa..... 7,267  
For Argentine:  
Br. Str. Homecliffe, for Buenos Aires 6,297  
Br. Str. Overstone, for Ibcuy..... 5,638  
For Norway:  
Belg. Str. Ostende, for Oslo..... 5,479  
For Cape Verde Island:  
Am. Str. Commercial Trader, for St. Vincent..... 6,983  
For Azores:  
Br. Str. Laurelpark, for St. Michael.. 2,544  
For Algeria:  
Br. Str. Elva Seed, for Algiers..... 3,045  
For Denmark:  
Nor. Str. Belgot, for Aalborg..... 2,801  
For Egypt:  
Br. Str. Laleham, for Alexandria.... 6,204

### FROM PHILADELPHIA

For United Kingdom:  
Br. Strs. Spilsby, Korean Prince and Newaster, J.-S. Str. Frederike Gravlve ...  
For Brazil:  
Braz. Str. Tribuze, for Rio de Janeiro ...  
For France and/or United Kingdom:  
Ital. Str. Semper Avante and Du. Str. Haulerwijkm ..  
For Greece:  
Ger. Str. Gerfird, for Pireaus.....  
For France:  
Fr. Str. P. L. M. 22, for Marseilles...  
For British West Indies:  
Nor. Str. Stabell, for St. Lucia.....

### Hampton Roads Coal Dumpings\*

	(In Gross Tons)	
	Dec. 2	Dec. 9
N. & W. Piers, Lamberts Pt.:		
Tons dumped for week.....	298,528	276,646
Virginian Piers, Sewalls Pt.:		
Tons dumped for week.....	114,182	119,655
C. & O. Piers, Newport News:		
Tons dumped for week.....	187,067	230,135

\* Data on cars on hand, tonnage on hand and tonnage waiting withheld due to shippers' protest.

### Pier and Bunker Prices, Gross Tons

PIERS		
Pool 1, New York...	\$6.50@ \$6.75	\$6.50@ \$6.75
Pool 9, New York...	6.00@ 6.25	6.75@ 6.25
Pool 10, New York...	5.50@ 6.00	6.50@ 6.65
Pool 11, New York...	5.00@ 5.25	5.00@ 5.25
Pool 9, Philadelphia...	6.00@ 6.25	6.70@ 6.20
Pool 10, Philadelphia...	5.65@ 5.95	6.50@ 6.75
Pool 11, Philadelphia...	5.35@ 5.60	6.20@ 6.40
Pool 1, Hamp. Roads	6.50@ 6.75	6.50@ 6.75
Pool 2, Hamp. Roads	6.25@ 6.35	6.30@ 6.55
Pool 3, Hamp. Roads	5.50@ 5.75	4.85
Pools 5-6-7, Hamp. Rds.	5.50@ 5.75	5.00@ 5.15
BUNKERS		
Pool 1, New York...	\$6.75@ \$7.00	\$6.75@ \$7.00
Pool 9, New York...	6.25@ 6.50	6.00@ 6.50
Pool 10, New York...	5.75@ 6.25	6.75@ 6.90
Pool 11, New York...	5.25@ 5.50	5.25@ 5.50
Pool 9, Philadelphia	6.25@ 6.50	6.95@ 6.45
Pool 10, Philadelphia	5.90@ 6.20	6.75@ 6.00
Pool 11, Philadelphia	5.60@ 5.85	6.45@ 5.65
Pool 1, Hamp. Roads...	6.75	6.75
Pool 2, Hamp. Roads...	6.35	6.50
Pools 5-6-7, Hamp. Rds.	5.75	6.00

† Advances over previous week shown in heavy type, declines in italics.

## Coming Meetings

**Monongahela Coal Association.** Annual meeting, Jan. 13, at Morgantown, W. Va. Secretary, D. H. Pape, Morgantown, W. Va.

**American Society of Civil Engineers.** Annual meeting, Jan. 19-21, 1927, at Engineering Societies Bldg., New York City. Secretary, George T. Seabury, 29 West 39th St., New York City.

**American Wood Preservers' Association.** Annual meeting, Jan. 25-27, 1927, at Nashville, Tenn. Secretary, E. J. Stocking, 111 W. Washington St., Chicago, Ill.

**Philadelphia Coal Club.** Annual meeting, Jan. 27, 1927, at the Bellevue-Stratford Hotel, Philadelphia, Pa. Secretary, Charles K. Scull, Philadelphia, Pa.

**Northeast Kentucky Coal Association.** Annual meeting, Jan. 27, 1927, at Ventura Hotel, Ashland, Ky. Secretary, C. J. Neekamp, Ashland, Ky.

**American Institute of Electrical Engineers.** Midwinter convention, Feb. 7-10, Engineering Societies Bldg., New York. Secretary, F. L. Hutchinson, 33 W. 39th St., New York City.

**American Institute of Mining and Metallurgical Engineers.** Annual meeting, Feb. 14-17, 1927, Engineering Societies Bldg., New York City. Secretary, H. Foster Bain, 29 West 39th St., New York City.

## New Companies

**The Plumber Hill Coal Co.** has been chartered at New Straitsville, Ohio, with an authorized capital of \$15,000, to mine and sell coal from the Nelsonville field. The incorporators are G. W. Hite, W. J. Johnson, Harry Leah, C. N. Hiedlebaugh and Wesley Kemper.

**The Cumberland Canyon Coal Co.,** Clintwood, Va., with a capital of \$10,000 has been incorporated by Alfred G. Toney, Praise, Ky., and R. E. Chase, Clintwood.

**The Dunlap Coal Co.** has been incorporated by John A. Chambliss, Provident Life Building, Chattanooga, Tenn.

**The Estervan Briquetting Works, Ltd.,** of Estervan, Sask., has been incorporated to carry on the business of briquetting coal and dealing in coal and other fuel, with a capital of \$1,000,000. The incorporators are Everett A. Hartley, John N. Kauffman, Herbert Wallace and others.

**The Sardis Coal Co.,** with H. G. Greer, S. H. Diemer, Mrs. S. H. Diemer, Bernard Sampson and James P. Burns, Jr., incorporators, has been granted a state charter and will start soon to operate 100 acres of coal lands near Lumberport, W. Va. The capacity of the new mine is expected to reach 10 cars daily within a short time.

**The Hy-Burn Gas Coal Co.,** Middlesboro, Ky., capital \$20,000, has been incorporated by M. M. Shelburne, A. C. Shelburne, and A. J. Hyden, among others.

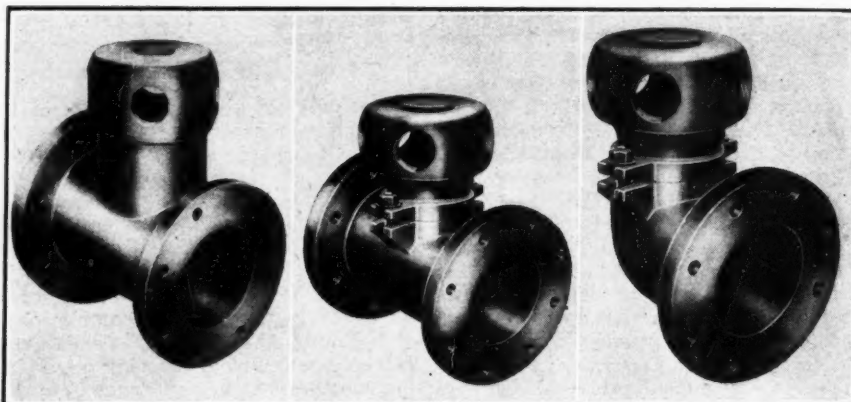
## New Equipment

### Spray Pond Fittings Improved

Additions to its line of spray-pond fittings have been announced by the Yarnell Waring Co., Philadelphia, Pa. In this new line the shape of the distributor head has been changed from cylindrical to spherical form as shown

Pa. This screen is a mechanically operated device, reduced to the simplest possible mechanism, one moving part, which rotates in large oversize ball bearings.

The vibrator has no cams, springs, striking blocks or levers, but simply consists of a shaft, driven at suitable



Designed to Reduce Friction

At the left is the improved type A-tee with its spherical head. The center is type B-tee which has a separate distribution head. At the right is the type B-ell for use at the end of the spray headers.

at the left of the accompanying illustration.

This form, it is claimed tends to give better support to the spray arms when screwed into place, as it gives a full uniform thread. It also helps to lessen the pumping load due to friction. The type B-ell shown to the right of the illustration is placed at the end of the laterals or spray headers and does away with the necessity for a blank flange.

### Ball-Bearing Vibrating Screen Is Developed

Marked by simplicity of construction and requiring, it is asserted, a minimum upkeep expense, and possessing adaptability to almost any fine screening condition, a new ball bearing vibrating screen has just been announced by the Link-Belt Co. of Philadelphia,

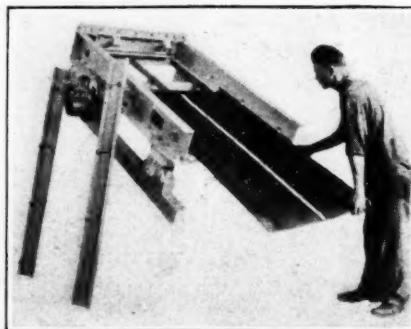


Fig. 1—Design Permits Quick Replacements

The method of inserting the screen cloth is shown above. These cloths are of standard width and can be obtained in rolls from the manufacturers.

speed from any common source of power. This shaft, thrown out of balance by adjustable counterweights, imparts vibrations to the screen box on which it is mounted, and these in turn, are transmitted to the screen cloth secured, under tension, in the box.

There are five standard sizes: 2x5 ft., 3x5 ft., 4x5 ft., 3x8 ft., and 4x8 ft. Each can be furnished with either one or two screening surfaces, giving a wide application for materials of varying size.

The screen cloth is placed upon the

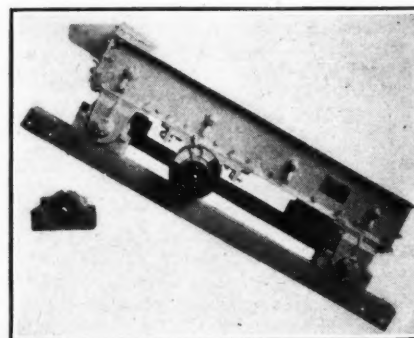


Fig. 2—Will Handle a Non-Uniform Feed

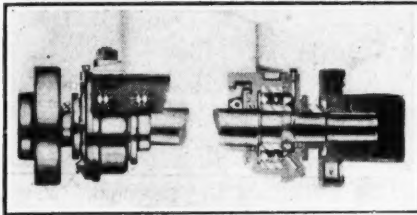
The vibrating feed hopper is fitted with a counterweighted swinging feed gate making it easy to receive a non-uniform supply of material. The necessity of a mechanical distributor is obviated by the regulating gate.

deck with its two longitudinal edges bent up. Binders are provided on the fine-mesh cloths, for protection against tearing. Two flanged clamp plates engage these binders or the bent edges of the cloth, and by tightening the wing nuts on each side, the cloth can be



quickly stretched to the desired tension.

These side clamp plates serve the purpose of stretching the screen box side frames, and preventing leakage along side edges. A longitudinal vibrator strip assists the screening action by imparting raps to the cloth, mini-



**Fig. 3—Reduces Power Requirements**

The above illustration shows assembly of vibrator pulley with its shaft and ball bearings. The construction is rugged yet simple and designed to keep power consumption to a minimum.

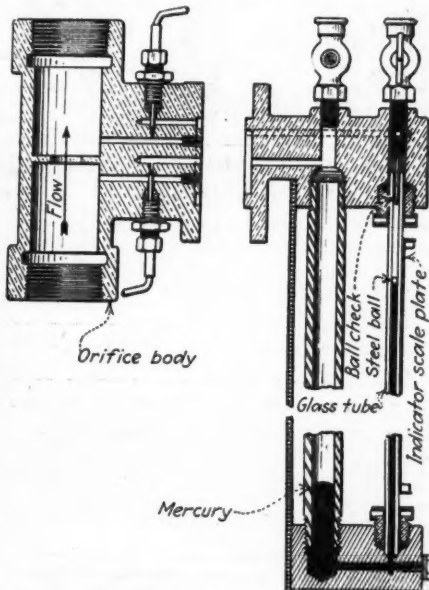
mizing wear and clogging. The binders are quickly detachable and can be re-used; the screen cloths, of standard width, can be obtained in rolls from the cloth manufacturers.

A feed hopper attached to the receiving end of the screen box vibrates with it, controls the feed, and uniformly spreads the material over the screening surface.

### Simplicity Is Feature of New Flow Indicator

The illustration shows a type of flow indicator designed to measure the flow of either gas or liquids under practically all conditions and in any unit desired.

This instrument combines the well-known orifice and U-tube principles. It



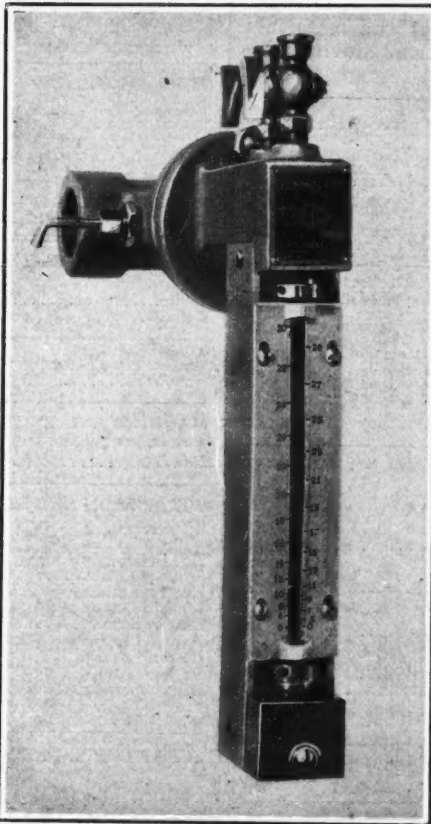
### Convenience and Simplicity in Design

The indicator may be removed without draining the line. Provision is made to keep the mercury from blowing out if the instrument is suddenly overrated.

is made up with a long scale plate to cover a wide range of flow.

According to the manufacturers, a feature of the instrument is the provision made to prevent the mercury blowing over. This is accomplished by floating a steel ball on the surface of

the mercury in the indicating tube. In the event of the instrument being suddenly overrated or if undue pulsation takes place, the ball comes to rest against a seat and holds the mercury in the tube. Needle valves are provided in the orifice body so that the indicator may be removed or repairs or adjustments made without draining the line. Where the indicator is to be used for stream-flow indication, a small condensing reservoir is inserted in each



### Covers a Wide Range of Flow

This instrument may be "hooked up" directly to the line, or may be remotely located when desirable.

line to the indicator to keep the connecting lines full of water.

The instrument is manufactured and distributed by Morey, Jones & Lovell, 810 West Sixth St., Los Angeles, Calif.

### Reduction Gear Is Designed For Gasoline Engines

The normal speed of a heavy duty industrial gasoline engine averages from 950 to 1,000 r.p.m., yet many units to be driven must run at speeds decidedly lower than this. This reduction in speed may be secured by the use of pulleys of different diameters, or by some mechanical means such as a speed-reduction gear set.

To meet the requirements of such engine users the Climax Engineering Co., Clinton, Iowa, has developed a  $3\frac{1}{2}$  to 1 reduction gear for use with Climax gasoline engines, models "TU," "R4U," and "R6U."

This newly designed speed reducer consists essentially of a compact set of heat-treated cut gears, enclosed in an oil- and dust-proof casing which is bolted to the flywheel housing of the engine. The high- and low-speed shafts

rotate in the same direction. These gears run in oil and are designed to operate with a minimum of noise. The reduction gear unit embodies a twin-disc clutch, thus allowing the engine to be started independently of the load, which is thrown on after the engine is in operation.

### Heavy Choke Coil

For heavy-capacity circuits a new type of choke coil with reinforced turns has been developed by the Delta Star Electric Co., Chicago. The standard coil has an insulator mounted at an angle of 60 deg. to the base, but the unit can be furnished with the insulator mounted at a 90-deg. angle, if desired. The coil is at present available in a capacity of 1,600 amp. for 22-kv. service.

### Trade Literature

**I-Yard Heavy Duty Gas or Electric Shovel.** The Osgood Co., Marion, Ohio. Bulletin 2620. Pp. 24; 8½x11 in.; illustrated. Describes the construction and operation of this shovel, which is designed for service as a crane with hook block or with clamshell bucket, as a dragline excavator and as a back hoe.

**General Electric Co., Schenectady, N. Y., recently issued the following two bulletins: Control Equipment for Charging Storage Batteries, Bulletin GEA-484, and Totally Enclosed Fan-Cooled D-C Motors, GEA-517.**

**Sand and Dredging Pumps, Hydraulic Dredge Machinery.** Morris Machine Works, Baldwinsville, N. Y. Bulletin No. 125. Pp. 56; 8x10½ in.; illustrated. Includes a discussion of hydraulic dredging, sand and gravel production, hydraulic conveying, hydraulic methods in mining and general contracting work, power equipment and accessories for dredges and sand pumps, etc.

**Tests of the Fatigue Strength of Cast Steel,** by Herbert F. Moore. Bulletin No. 156, University of Illinois, Urbana, Ill. Pp. 20; 6x9 in.; illustrated. Price 10c. A report of an investigation conducted by the Engineering Experiment Station, University of Illinois, in cooperation with the American Steel Foundries.

### Recent Patents

**Coal Concentration; 1,595,745.** William Truran, Yolanda, Calif., assignor to Minerals Separation North American Corp., New York City. Aug. 10, 1926. Filed May 24, 1922; serial No. 563,341.

**Process of Carbonization of Coal; 1,595,934.** Charles Hayes, Paris, France, assignor to the Coal Carbonization Co. of Delaware. Aug. 10, 1926. Filed Dec. 10, 1925; serial No. 74,542.

**Method of Operating Coke Ovens; 1,596,048.** Robert B. Kernohan, Pittsburgh, Pa. Aug. 17, 1926. Filed Sept. 12, 1924; serial No. 737,298.

**Safety Device for Mine Shafts; 1,596,112.** James G. Marcum, Joplin, Mo., assignor of one-half to Frank Childress, Joplin, Mo. Aug. 17, 1926. Filed Oct. 3, 1924; serial No. 741,519.

# Current Prices of Mining Supplies

Electrical prices are to the mine by jobbers in the larger buying centers east of the Mississippi. Elsewhere the prices will be modified by increased freight charges and by local conditions.

## SINCE LAST MONTH

**TRACK** supplies and railway materials, generally, enjoy the most prominent place in current steel demand. Prices of these items are firmer, while other mine supplies made from iron, steel or non-ferrous metals appear to be moving slowly. Slight price reduction is reported on railway ties in the Chicago district. Most of the materials covered showed no marked price fluctuations during the last four weeks.

**STEEL RAILS**—The following quotations are per ton f.o.b. in carload or larger lots:

	Pittsburgh			
	Current	One Year Ago	Birmingham	Chicago
Standard Bessemer rails.....	\$43.00	\$43.00	\$43.00	\$43.00
Standard openhearth rails.....	43.00	43.00	43.00	43.00
Light rails, 12 to 45 lb.....	36.00	36@38	34@36	1.80@1.90*

\*Per 100 lb.

**TRACK SUPPLIES**—The following prices are base per 100 lb. f.o.b. Pittsburgh mill for carload lots, together with warehouse prices at the places named:

	Pittsburgh			
	Current	One Year Ago	Chicago	Birmingham
Standard spikes, 1 1/2-in. and larger.....	\$2.80@2.90	\$2.90@3.00	\$3.55	\$3.00
Track bolts.....	3.90@4.25	3.90@4.15	4.55	3.90
Standard section angle bars, splice bars or fish plates	3.75	2.75	3.40	4.15

**WROUGHT PIPE**—The following discounts are to jobbers for carload lots at Pittsburgh mill:

Inches	STEEL BUTT WELD		Inches	IRON BUTT WELD	
	Black	Galv.		Black	Galv.
1 to 3.....	62	50 1/2	1 to 1 1/2.....	30	12
2.....	55	43 1/2	2.....	23	7
1 to 1 1/2.....	60	49 1/2	1 to 1 1/2.....	30	14
2.....	53	42 1/2	2.....	23	9

**STEEL PIPE**—From warehouses at the places named the following discounts hold for welded steel pipe:

	Black			
	New York	Chicago	Birmingham	St. Louis
1 to 3 in. butt welded.....	53%	54%	62%	49%
2 1/2 to 6 in. lap welded.....	48%	51%	59%	46%
	Galvanized			
	New York	Chicago	Birmingham	St. Louis
1 to 3 in. butt welded.....	39%	41%	50 1/2%	36%
2 1/2 to 6 in. lap welded.....	35%	38%	47 1/2%	33%

Malleable fittings, Classes B and C, banded, from New York stock sell at list plus 4% less 5%. Cast iron, standard sizes, 36—5% off.

**CAST-IRON PIPE**—The following are prices per net ton for carload lots:

	New York			
	Birmingham	Burlington, N. J.	Current	One Year Ago
4 in.....	\$43.00	\$52.00	\$54.60	\$54.60@56.60
6 in. and over.....	39.00	48.00	50.60	50.60@52.60
	Pittsburgh			
	Chicago	St. Louis	San Francisco	
4 in.....	\$51.60	\$51.20	\$49.60	\$53.00
6 in. and over.....	47.60	47.20	45.60	49.00

Gas pipe and Class "A," \$4 per ton extra.

**MACHINE BOLTS**—Size 1x1 1/2-in., per 100, \$1.70. Discount at New York warehouses on all sizes up to 1x30-in., 40%; 1 1/2 and 1 1/2x3-in. up to 12-in., 15%; with cold punched hex. nuts up to 1-in. dia. (plus std. extra of 10%) 30%; with hot pressed hex. nuts up to 1x30-in. (plus std. extra of 10%) 35%.

**CARRIAGE BOLTS**—Size 1x1 1/2-in., per 100, \$1.00. Discount on all sizes up to 1x30-in., 30%.

**NUTS**—Semi-finished, 1x1-in., 2c. each. Discount 70% for 1 1/2-in. and smaller and 65% for 1-in. and larger. Case hardened 1x1 1/2-in., 6c. each, less 50%.

**STEEL PLATES**—Following are base prices per 100 lb. in carload lots, f.o.b., for 1-in. thick and heavier:

Pittsburgh.....	\$1.90	Birmingham.....	\$2.00
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**STRUCTURAL RIVETS**—The following quotations are per 100 lb., in carload lots, f.o.b. mill, for 1-in.:

Pittsburgh... \$2.50@2.60	Cleveland... \$2.40@2.60	Chicago... \$2.60@2.75
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**WIRE ROPE**—Discounts from list price on regular grades of bright and galvanized, in New York and territory east of Missouri River:

	Per Cent
Plow steel round strand rope.....	35
Special steel round strand rope.....	30
Cast steel round strand rope.....	20
Round strand iron and iron tiller.....	5
Galvanized steel rigging and guy rope.....	7 1/2
Galvanized iron rigging and guy rope.....	+12 1/2

**RAIL BONDS**—30-in., 0000, stranded copper, welded, expanded terminals, f.o.b. Chicago, per 100, \$78.54@\$94.24.

**RAILWAY TIES**—For fair-sized orders, the following prices per tie hold:

	6 In. x 8 In. by 8 Ft.	7 In. x 9 In. by 8 1/2 Ft.
Chicago, white oak, plain.....	\$1.45	\$1.83
Chicago, empty cell creosoted.....	1.85	2.45
Chicago, zinc treated.....	1.65	2.15
St. Louis, white oak, plain.....	1.20	1.45
St. Louis, zinc treated.....	1.60	1.85
St. Louis, red oak, plain.....	1.10	1.35
St. Louis, sap pine-cypress.....	.95	1.20
Birmingham, white oak.....	1.25	1.45

**STEEL MINE TIES**—Wood wedge, for room use only, f.o.b. Fairmont, W. Va., per tie:

30-in.....	\$0.29	36-in.....	\$0.30	42-in.....	\$0.32	48-in.....	\$0.35
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**CALCIUM CARBIDE**—In drums, f.o.b. producing point, per lb., \$0.05@ \$0.06.

**BRATTICE CLOTH**—Jute, per sq. yd., \$0.14 to \$0.20, in Charleston, W. Va., St. Louis, Mo. and Pittsburgh, Pa., districts.

**COTTON WASTE**—The following prices are in cents per lb.:

	New York	Cleveland	Chicago
White.....	13.00@17.50	18.00	15.00@20.00
Colored.....	10.00@14.00	13.50	12.00@17.00

**DRILL ROD**—Discounts from list:

New York.....	60%	Cleveland.....	55%	Chicago.....	50%
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**MACHINE AND ENGINE LUBRICANT**—Medium bodied, in 55 gal. metal barrels, as follows:

New York.....	\$0.35	Cleveland.....	\$0.35	Chicago.....	\$0.29
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**SCRAP IRON AND STEEL**—The prices following are f.o.b. per net ton paid by dealers:

	New York*	Chicago	Birmingham
No. 1 railroad wrought.....	\$14.00@15.00	\$12.50@13.00	\$12.00@13.00
Stove plate.....	10.00@11.00	13.75@14.25	14.00@14.50
No. 1 machinery cast.....	16.00@17.00	16.00@16.50	17.00@17.50
Machine shop turnings.....	9.25@9.75	6.00@6.50	8.00@8.50
Cast borings.....	10.00@10.25	8.75@9.25	8.00@9.00
Railroad malleable.....	16.00@16.50	14.25@14.75	16.00@17.00
Re-rolling rails.....	12.50@13.00	14.50@15.00	16.00@16.00
Re-laying rails.....	23.00@24.00		21.00@22.00
Heavy melting steel.....	11.50@12.00	11.50@12.00	13.00@14.00

\* Gross ton.

**SCRAP COPPER AND BRASS**—Dealers' purchasing prices in cents per lb.:

	New York	Cleveland	Chicago
Crucible heavy copper.....	11.62@11.87 1/2	11.00	11.50@11.00
Copper, heavy, and wire.....	10.87 1/2@11.37 1/2	11.25	10.00@10.50
Copper, light, and bottoms.....	9.25@9.75	9.50	8.75@9.25
Brass, heavy, yellow.....	7.00@7.25	7.25	6.25@6.75
Brass, heavy, red.....	9.25@9.75	9.25	8.50@9.00
Brass, light.....	5.50@5.75	6.00	5.75@6.25
No. 1 yellow rod turnings.....	7.75@8.25	7.50	7.25@7.75

**COPPER WIRE**—Prices of bare wire, base, at warehouse, in cents per lb. are as follows:

New York.....	19.50	Cleveland.....	19.25	Chicago.....	16.12 1/2
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**FRICTION TAPE**—Size 1/2-in. in 100 lb. lots in Eastern territory, per lb., \$0.33.

**TROLLEY WIRE**—In carload lots, f.o.b., producing point, all sizes, round, 16 1/2c. per lb.; grooved, 16 1/2c.; Fig. 8, 17c.

**TROLLEY WHEELS**—F.o.b. Jersey City, N. J., 4-in., 95c. each; 6-in., \$1.50 each.

**MINING MACHINE CABLE**—F.o.b. producing point, parallel lay patterns, per M. ft.:

	Braided	All Rubber Covered
Size 2.....	\$182.00	\$564.00
Size 3.....	157.00	473.00
Size 4.....	140.00	410.00

**LOCOMOTIVE CABLE**—F.o.b. producing point, braided, Size 3, \$83.00 per M. ft.; Size 4, \$71.00 per M. ft.

**FEEDER CABLE**—Price per M. ft. in larger buying centers east of the Mississippi

B. & S. Size	Two Conductor	Three Conductor
No. 14 solid.....	\$32.50 (net)	\$51.00 (net)
No. 12 solid.....	135.00	170.00
No. 10 solid.....	185.00	235.00
No. 8 stranded.....	285.00	375.00
No. 6 stranded.....	400.00	500.00

From the above lists discounts are: Less than coil lots, 50%; Coils to 1,000 ft., 60%; 1,000 to 5,000 ft., 60-5%; 5,000 ft. and over, 60-10%.

**EXPLOSIVES**—F.o.b. in carload lots:

	West Virginia	Pennsylvania	Missouri
Black Powder, FF, NaNO <sub>3</sub> base, 800 kegs per car, per 25 lb. keg.....	\$1.80	\$1.70	\$1.75
Ammonium permittiole, 1 1/2 x 8 in. sticks, 2,000 lb. per car, per 100 lb.....	15.00	14.25	14.50